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EDUCATIONAL REVIEW

JANUARY, 1902

I

ACADEMIC FREEDOM

In discussing the questions summed up in the phrase academic freedom, it is necessary to make a distinction between the university proper and those teaching bodies, called by whatever name, whose primary business is to inculcate a fixed set of ideas and facts. The former aims to discover and communicate truth and to make its recipients better judges of truth and more effective in applying it to the affairs of life. The latter have as their aim the perpetuation of a certain way of looking at things current among a given body of persons. Their purpose is to disciple rather than to discipline—not indeed at the expense of truth, but in such a way as to conserve what is already regarded as truth by some considerable body of persons. The problem of freedom of inquiry and instruction clearly assumes different forms in these two types of institutions. An ecclesiastical, political, or even economic corporation holding certain tenets certainly has a right to support an institution to maintain and propagate its creed. It is a question not so much of freedom of thought as of ability to secure competent teachers willing to work under such conditions, to pay bills, and to have a constituency from which to draw students. Needless to say, the line between these two types of institutions is not so clear-cut in practice as it is in theory. Many institutions are in a state of transition. Historically, they are bound by ties to some particular body of beliefs, generally to some denominational association. Nominally, they

still owe a certain allegiance to a particular body. But they are also assuming many strictly university functions and are thereby accepting obligations to a larger world of scholarship and of society. In these respects the institution imposes upon its teaching corps not merely a right, but a duty, to maintain in all ways the university ideal of freedom of inquiry and freedom of communication. But, in other respects, while the historical denominational ties are elongated and attenuated, they still remain; and thru them the instructor is to some extent bound. Implicit, if not explicit, obligations are assumed. In this situation, conflict between the two concerns of the university may arise; and in the confusion of this conflict it is difficult to determine just which way the instructor is morally bound to face. Upon the whole it is clear, however, that the burden falls upon the individual. If he finds that the particular and local attachment is so strong as to limit him in the pursuit of what he regards as essential, there is one liberty which cannot be taken away from him: the liberty of finding a more congenial sphere of work. So far as the institution is frank in acknowledging and maintaining its denominational connections, he cannot throw the burden back upon it. Nevertheless he, and those who are like-minded, have the right to deplore what they consider as a restriction, and to hope and labor for the time when the obligation in behalf of all the truth to society at large shall be felt as more urgent than that of a part of truth to a part of society.

But it cannot be inferred that the problem is a wholly simple one, even within the frankly announced denominational institutions. The line in almost any case is a shifting one. I am told that a certain denominational college permits and encourages a good deal of instruction in anatomy and physiology because there is biblical authority for the statement that the human body is fearfully and wonderfully made, while it looks askance upon the teaching of geology because the recognized doctrine of the latter appears to it to conflict with the plain statements of Genesis. As regards anatomy and physiology, an instructor in such an institution would naturally feel that his indebtedness was to the world of scholarship rather than to

his own denomination, and here conflict might possibly arise. Or a teacher of history might find a conflict existing between the supposed interests of his denomination and the historical facts as determined by the best research at his command. Here, again, he would find himself naturally pulled in two different directions. No possible tie to what his own institution specially stands for can impose upon him the obligation to suppress the truth as he sees it. I quote such cases simply to indicate that, while in a general way there is a line of demarcation between the two types of institutions referred to, and consequently the problem of academic freedom does not arise so definitely in one type, yet even in the latter, because all things shift, the question, after all, may assert itself.

In the subsequent discussion I shall confine myself exclusively to institutions of the university type. It is clear that in this sphere any attack, or even any restriction, upon academic freedom is directed against the university itself. To investigate truth; critically to verify fact; to reach conclusions by means of the best methods at command, untrammeled by external fear or favor, to communicate this truth to the student; to interpret to him its bearing on the questions he will have to face in life—this is precisely the aim and object of the university. To aim a blow at any one of these operations is to deal a vital wound to the university itself. The university function is the truth-function. At one time it may be more concerned with the tradition or transmission of truth, and at another time with its discovery. Both functions are necessary, and neither can ever be entirely absent. The exact ratio between them depends upon local and temporal considerations rather than upon anything inherent in the university. The one thing that is inherent and essential is the idea of truth.

So clear are these principles that, in the abstract, no theoretical problem can possibly arise. The difficulties arise from two concrete sources. In the first place, there is no gainsaying the fact that some of the studies taught in the university are inherently in a much more scientific condition than others. In the second place, the popular or general recognition of scientific status is much more widespread as regards some

subjects than others. Upon the whole, it is practically impossible for any serious question regarding academic freedom to arise in the sphere of mathematics, astronomy, physics, or chemistry. Each of these subjects has now its definite established technique, and its own sphere within which it is supreme. This is so as fact; and it is generally so recognized by all persons of influence in the community. Consequently, there is no leverage from which to direct an attack upon academic freedom in any of these subjects. Such, of course, was not the case a few centuries ago. We know the storm that raged about astronomy. We know that it is only thru great trial and tribulation that the sciences have worked out such a definite body of truth and such definite instrumentalities of inquiry and verification as to give them a position assured from attack.

The biological sciences are clearly in a transitional state. The conception of evolution is a test case. It is safe to say that no university worthy of the name would put any limitation upon instruction in this theory, or upon its use as an agency of research and classification. Very little sympathy could be secured for an attack upon a university for encouraging the use of this theory. Many of the smaller colleges, however, would be shaken to their foundations by anything that seemed like a public avowal of belief in this doctrine. These facts would seem to mean that the more influential sections of the community upon which the universities properly depend have adjusted themselves to the fact that biology is a science which must be the judge of its own methods of work; that its facts and tests of fact are to be sought within its own scientific operations, and not in any extraneous sources. There are still, however, large portions of society which have not come to recognize that biology is an established science, and which, therefore, cannot concede to it the right to determine belief in regions that conflict with received opinions, and with the emotions that cluster about them.

There is another group of sciences which, from the standpoint of definitive method and a clearly accepted body of verified fact, are more remote from a scientific status. I refer

especially to the social and psychological disciplines, and to some phases of linguistic and historical study—those most intimately associated with religious history and literature. Moreover, the public recognition of the scientific status attained lags behind the fact. As compared with mathematics or physics we can employ the term "science" only in a tentative and somewhat prophetic sense—the aspirations, the tendencies, the movement are scientific. But to the public at large the facts and relations with which these topics deal are still almost wholly in the region of opinion, prejudice, and accepted tradition. It has hardly dawned upon the community as a whole that science really has anything to say upon matters in the social and psychological sphere. The general public may be willing enough to admit in the abstract the existence of a science of political economy, sociology, or psychology, but when these dare to emerge from a remote and technical sphere, and pass authoritative judgment upon affairs of daily life,—when they come in contact, that is, with the interests of daily life,—they meet with little but skepticism or hostility or, what is worse, sensational exploitation.

It is out of these two facts—the backwardness of some of our sciences and failure of the general public to recognize even the amount of advance actually made—that the concrete problems of academic freedom arise. The case may be stated as follows: On behalf of academic freedom it may be urged that the only way in which the more backward subjects can possibly reach anything like the status of mathematics and mechanics is by encouraging to the utmost freedom of investigation, and the publication, oral and printed, of the results of inquiry. It may be urged that the very failure on the part of the public to recognize rightful jurisdiction for scientific methods and results is only the more reason for unusual frankness and fullness of expression. Because the public is so behind the scientific times, it must be brought up. The points of contact, it may be urged, between the social and moral sciences and social needs, are even more numerous and more urgent than in the case of the mathematical and physical sciences. The latter have secured

their independence thru a certain abstractness, a certain remoteness from matters of social concern. Political economy, sociology, historical interpretation, psychology in its various possible applications, deal face to face with problems of life, not with problems of technical theory. Hence the right and duty of academic freedom are even greater here than elsewhere.

Per contra, it may be pointed out that, in so far as these subjects have not reached a scientific status, an expression of opinion on the part of a university instructor remains after all nothing but an expression of opinion, and hardly entitled to any more weight than that of any other reasonably intelligent person. It, however, is almost certain to be regarded as an official judgment. It thus commits and possibly compromises the institution to which the instructor belongs. The sphere of ideas which has not yet come under recognized scientific control is, moreover, precisely that which is bound up most closely with deep-rooted prejudice and intense emotional reaction. These, in turn, exist because of habits and modes of life to which the people have accustomed themselves. To attack them is to appear to be hostile to institutions with which the worth of life is bound up.

John Stuart Mill, with characteristic insight, somewhere points out that the German easily tolerates and welcomes all kinds of new ideas and new speculations because they exist in a region apart; they do not affect, excepting indirectly, the practical conduct of life. With the Englishman it is different. He is instinctively uneasy in the presence of a new idea; the wider the scope of the idea, the more readily uneasiness turns to suspicion and hostility. He recognizes that to accept the new idea means a change in the institutions of life. The idea is too serious a matter to be trifled with. The American has certainly inherited enough of the Englishman's sense for the connection of theory and practice to be conservative in the matter of the public broaching (and under modern conditions even classroom discussion is quasi-public) of ideas which lie much beyond the bounds of the domain publicly allotted to science.

Wherever scientific method is only partially attained the danger of undue dogmatism and of partisanship is very great. It is possible to consecrate ideas born of sheer partisanship with the halo of scientifically established belief. It is possible to state what is currently recognized to be scientific truth in such a way as to violate the most sacred beliefs of a large number of our fellow-men. The manner of conveying the truth may cause an irritation quite foreign to its own substance. This is quite likely to be the case whenever the negative rather than the positive aspect is dwelt upon; wherever the discrepancy between the new truth and established institutions is emphasized, rather than the intrinsic significance of the new conception. The outcome is disintegrating instead of constructive; and the methods inevitably breed distrust and antagonism.

One might, for example, be scientifically convinced of the transitional character of the existing capitalistic control of industrial affairs and its reflected influences upon political life; one might be convinced that many and grave evils and injustices are incident to it, and yet never raise the question of academic freedom, altho developing his views with definiteness and explicitness. He might go at the problem in such an objective, historic, and constructive manner as not to excite the prejudices or inflame the passions even of those who thoroly disagreed with him. On the other hand, views at the bottom exactly the same can be stated in such a way as to rasp the feelings of everyone exercising the capitalistic function. What will stand or fall upon its own scientific merits, if presented as a case of objective social evolution, is mixed up with all sorts of extraneous and passion-inflaming factors when set forth as the outcome of the conscious and aggressive selfishness of a class.

As a result of such influences the problem of academic freedom becomes to a very large extent a personal matter. I mean that it is a matter of the scholarship, judgment, and sympathy of the individual in dealing with matters either only just coming within the range of strict scientific treatment, or, even if fairly annexed to the scientific domain, not yet recognized by contemporary public opinion as belonging there. All

sorts of difficulties arise when we attempt to lay down any rules for, or pass any judgment upon, the personal aspects of the matter. Such rules are likely to be innocuous truisms. We can insist upon one hand that the individual must be loyal to truth, and that he must have the courage of his convictions; that he must not permit their presumed unpopularity, the possibly unfavorable reaction of their free expression upon his own career, to swerve him from his singleness of devotion to truth. We may dwell upon the dangers of moral cowardice and of turning traitor to the cause in which every scholar is enlisted. We may indicate the necessity of the use of common sense in the expression of views on controverted points, especially points entering into the arena of current religious and political discussion. We may insist that a man needs tact as well as scholarship; or, let us say, sympathy with human interests—since "tact" suggests perhaps too much a kind of juggling diplomacy with the questions at issue.

It is possible to confuse loyalty to truth with self-conceit in the assertion of personal opinion. It is possible to identify courage with bumptiousness. Lack of reverence for the things that mean much to humanity, joined with a craving for public notoriety, may induce a man to pose as a martyr to truth when in reality he is a victim of his own lack of mental and moral poise. President Harper, in a clear and comprehensive discussion in his Convocation Address of December, 1900,[1] points out so clearly the sources of personal failure of this sort that I make no apology for quoting his words:

> (1) A professor is guilty of an abuse of privilege who promulgates as truth ideas or opinions which have not been tested scientifically by his colleagues in the same department of research or investigation. (2) A professor abuses his privilege who takes advantage of a classroom exercise to progagate the partisan view of one or another of the political parties. (3) A professor abuses his privilege who in any way seeks to influence his pupils or the public by sensational methods. (4) A professor abuses his privilege of expression of opinion when, altho a student and perhaps an authority in one department or group of departments, he undertakes to speak authoritatively on subjects which have no relationship to the department in which he was appointed to give instruction. (5) A professor abuses his privilege in many cases when, altho shut off in large measure

[1] See *University record*, 5 : 377.

from the world and engaged within a narrow field of investigation, he undertakes to instruct his colleagues or the public concerning matters in the world at large in connection with which he has had little or no experience.

Now, while all university men will doubtless agree with President Harper when he says " freedom of expression must be given to members of a university faculty, even tho it be abused, for the abuse of it is not so great an evil as the restriction of such liberty," yet it is clear that the presence of these personal elements detracts very much from the simplicity and significance of an issue regarding academic freedom. For reasons into which I cannot fully go, I am convinced that it is now well-nigh impossible to have raised, in any of the true universities of this country, a straight out-and-out issue of academic freedom. The constantly increasing momentum of scientific inquiry, the increasing sense of the university spirit binding together into one whole the scattered members of various faculties thruout the country, the increased sensitiveness of public opinion, and the active willingness of a large part of the public press to seize upon and even to exaggerate anything squinting towards an infringement upon the rights of free inquiry and free speech—these reasons, among others, make me dissent most thoroly from the opinion sometimes expressed that there is a growing danger threatening academic freedom.

The exact contrary is, in my judgment, the case as regards academic freedom in the popular sense, that is to say, of dictatorial interferences by moneyed benefactors with special individual utterances.

It does not follow, however, that there is no danger in the present situation. Academic freedom is not exhausted in the right to express opinion. More fundamental is the matter of freedom of work. Subtle and refined danger is always more to be apprehended than a public and obvious one. Encroachments that arise unconsciously out of the impersonal situation are more to be dreaded than those coming from the voluntary action of individuals. Influences that gradually sap and undermine the conditions of free work are more ominous than those which attack the individual in the open. Ability

to talk freely is an important thing, but hardly comparable with ability to work freely. Now freedom of work is not a matter which lends itself to sensational newspaper articles. It is an intangible, undefinable affair; something which is in the atmosphere and operates as a continuous and unconscious stimulus. It affects the spirit in which the university as a whole does its work, rather than the overt expressions of any one individual. The influences which help and hinder in this freedom are internal and organic, rather than outward and personal.

Without being a pessimist, I think it behooves the community of university men to be watchful on this side. Upon the whole, we are pretty sure that actual freedom of expression is not going to be interrupted at the behest of any immediate outside influence, even if accompanied with the prospective gift of large sums of money. Things are too far along for that. The man with money hardly dare directly interfere with freedom of inquiry, even if he wished to; and no respectable university administration would have the courage, even if it were willing, to defy the combined condemnation of other universities and of the general public.

None the less the financial factor in the conduct of the modern university is continually growing in importance, and very serious problems arise in adjusting this factor to strict educational ideals. Money is absolutely indispensable as a means. But it is only a means. The danger lies in the difficulty of making money adequate as a means, and yet keeping it in its place—not permitting it to usurp any of the functions of control which belong only to educational purposes. To these, if the university is to be a true university, money and all things connected therewith must be subordinate. But the pressure to get the means is tending to make it an end; and this is academic materialism—the worst foe of freedom of work in its widest sense.

Garfield's conception of the college as a bench with a student at one end and a great teacher at the other, is still a pious topic of after-dinner reminiscence; but it is without bearing in the present situation. The modern university is itself a great economic plant. It needs libraries, museums, and laboratories,

numerous, expensive to found and to maintain. It requires a large staff of teachers.

Now the need for money is not in itself external to genuine university concerns; much less antagonistic to them. The university must expand in order to be true to itself, and to expand it must have money. The danger is that means absorb attention and thus possess the value that attaches alone to the ultimate educational end. The public mind gives an importance to the money side of educational institutions which is insensibly modifying the standard of judgment both within and without the college walls. The great event in the history of an institution is now likely to be a big gift, rather than a new investigation or the development of a strong and vigorous teacher. Institutions are ranked by their obvious material prosperity, until the atmosphere of money-getting and money-spending hides from view the interests for the sake of which money alone has a place. The imagination is more or less taken by the thought of this force, vague but potent; the emotions are enkindled by grandiose conceptions of the possibilities latent in money. Unconsciously, without intention, the money argument comes to be an argument out of proportion, out of perspective. It is bound up in so many ways, seen and unseen, with the glory and dignity of the institution that it derives from association an importance to which it has in itself no claim.

This vague potentiality, invading imagination and seducing emotion, checks initiative and limits responsibility. Many an individual who would pursue his straight course of action unhindered by thought of personal harm to himself, is deflected because of fear of injury to the institution to which he belongs. The temptation is attractive just because it does not appeal to the lower and selfish motives of the individual, but comes clothed in the garb of the ideals of an institution. Loyalty to an institution, *esprit de corps*, is strong in the university, as in the army and navy. A vague apprehension of bringing harm upon the body with which one is connected is kept alive by the tendency of the general public to make no distinction between an individual in his personal and his profes-

sional capacity. Whatever he says and does is popularly regarded as an official expression of the institution with which he is connected. All this tends to paralyze independence and drive the individual back into a narrower corner of work.

Moreover, a new type of college administration has been called into being by the great expansion on the material side. A ponderous machinery has come into existence for carrying on the multiplicity of business and quasi-business matters without which the modern university would come to a standstill. This machinery tends to come between the individual and the region of moral aims in which he should assert himself. Personality counts for less than the apparatus thru which, it sometimes seems, the individual alone can accomplish anything. Moreover, the minutiæ, the routine turning of the machinery, absorb time and energy. Many a modern college man is asking himself where he is to get the leisure and strength to devote himself to his ultimate ends, so much, willy-nilly, has to be spent on the intermediate means. The side-tracking of personal energy into the routine of academic machinery is a serious problem.

All this, while absorbing some of the energy which ought to find outlet in dealing with the larger issues of life, would not be so threatening were it not for its association with the contemporary tendency to specialization. Specialization, in its measure and degree, means withdrawal. It means preoccupation with a comparatively remote field in relatively minute detail. I have no doubt that in the long run the method of specialization will justify itself, not only scientifically, but practically. But value in terms of ultimate results is no reason for disguising the immediate danger to courage, and the freedom that can come only from courage. Teaching, in any case, is something of a protected industry; it is sheltered. The teacher is set somewhat one side from the incidence of the most violent stresses and strains of life. His problems are largely intellectual, not moral; his associates are largely immature. There is always the danger of a teacher's losing something of the virility that comes from having to face and wrestle with economic and political problems on equal terms with competitors.

Specialization unfortunately increases these dangers. It leads the individual, if he follows it unreservedly, into bypaths still further off from the highway where men, struggling together, develop strength. The insidious conviction that certain matters of fundamental import to humanity are none of my concern because outside of my *Fach,* is likely to work more harm to genuine freedom of academic work than any fancied dread of interference from a moneyed benefactor.

The expansion of the material side of the modern university also carries with it strong tendencies towards centralization. The old-fashioned college faculty was pretty sure to be a thorogoing democracy in its way. Its teachers were selected more often because of their marked individual traits than because of pure scholarship. Each stood his own and for his own. The executive was but *primus inter pares.* It was a question not of organization or administration (or even of execution on any large scale), but rather of person making himself count in contact with person, whether teacher or student. All that is now changed—necessarily so. It requires ability of a very specialized and intensified order to wield the administrative resources of a modern university. The conditions make inevitably for centralization. It is difficult to draw the line between that administrative centralization which is necessary for the economical and efficient use of resources and that moral centralization which restricts initiative and responsibility. Individual participation in legislative authority and position is a guarantee of strong, free, and independent personalities. The old faculty, a genuine republic of letters, is likely to become an oligarchy—more efficient from the standpoint of material results achieved, but of less account in breeding men. This reacts in countless ways upon that freedom of work which is necessary to make the university man a force in the working life of the community. It deprives him of responsibility, and with weakening of responsibility comes loss of initiative.

This is one phase of the matter—fortunately not the whole of it. There has never been a time in the history of the world when the community so recognized its need of expert guidance as to-day. In spite of our intellectual chaos,

in spite of the meaningless hullabaloo of opinion kept up so persistently about us by the daily press, there is a very genuine hunger and thirst after light. The man who has the word of wisdom to say is sure of his audience. If he gets his light out from under the bushel, it carries a long way. From this point of view there are strong influences working to free the university spirit, the spirit of inquiry and expression of truth, from its entanglements and concealments. The need being imperative, the stimulus is great. A due degree of courage, a due measure of the spirit of initiative and personal responsibility is the natural response. With the decay of external and merely governmental forms of authority, the demand grows for the authority of wisdom and intelligence. This force is bound to overcome those influences which tend to withdraw and pen the scholar within his own closet.

An immediate resource counteracting the dangers threatening academic freedom, is found also in the growth of intercollegiate sentiment and opinion. No fact is more significant than the growing inclination on the part of scientific associations to assume a right and duty to inquire into what affects the welfare of its own line of inquiry, however and wherever it takes place. This is the growth of the corporate scientific consciousness; the sense of the solidarity of truth. Whatever wounds the body of truth in one of its members attacks the whole organism. It is not chimerical to foresee a time when the consciousness of being a member of an organized society of truth-seekers will solidify and re-enforce otherwise scattered and casual efforts.

Given that individual initiative whose permanent weakening we can scarcely imagine in an Anglo-Saxon community: and two forces, the need of the community for guidance and the sense of membership in the wider university to which every inquirer belongs, will assuredly amply triumph over all dangers attacking academic freedom.

JOHN DEWEY

THE UNIVERSITY OF CHICAGO

II

THE RIGHTS OF DONORS[1]

I presume it is scarcely incumbent upon me to declare myself to be quite as uncompromising a friend and lover of freedom as any man upon earth. I pronounce for the freedom of man in every walk in life, complete in so far as the exercise of his individual liberty is not subversive of his obligations to society and the rights of others. I assume that every teacher and professor has the fullest and most complete freedom conceivable of expression of his opinions upon all proper subjects to his pupils, and of propagation of such doctrines as he may have accepted as true—unless he has voluntarily entered into such relations and obligations as in some way curtail his complete freedom—if he is acting as an independent teacher, has founded his own school, secured his own scholars, or has reserved to himself independence in the service of his employers and inculcates nothing contrary to the laws of the land or destructive of social order. I assume that, under such conditions, he may teach what he pleases. "Truth is mighty and will prevail," and if a professor shall have discovered, or in any way acquired possession of, a scheme that he deems essential to be known of men in order that their political, social, economic, or religious regeneration may be effected and their happiness and condition in life increased and improved, why should he not go forth and teach it, even tho he suffer contumely and ostracism; believing, as he does, that his cause is pregnant of consequences glorious for mankind? If he is imbued with the true teaching spirit—and that is one of the essentials to true success as a teacher—mere details of salary and the like can weigh nothing with him in comparison with his lofty idea of duty. Under those circumstances he is entitled

[1] A paper read before the Association of Colleges and Preparatory Schools in the Middle States and Maryland, at Syracuse, N. Y., November 29, 1901.

to freedom of expression, absolute, within the limits I have indicated.

So much for independence of teaching by those who make their own fields, or have full liberty to cultivate in their own way the fields to which they are called by others.

And as to the founders of, and donors to, institutions of learning, whose sole business in life—money-making—may not have especially qualified them to determine what should be taught in colleges and universities, I am in favor of their having the like complete freedom within their province which I accord to teachers within theirs—freedom to insist upon it that the doctrines they believe to be true, and for the propagation of which they have expressly and avowedly founded the institution, or endowed the chairs, shall be taught in such institutions. I venture to say that nobody will be found to gainsay that proposition, limited always by the implied condition that none of the favorite doctrines of founders shall be taught if they are in derogation of law or good morals. It may be said that such institutions would not be universities; but institutions conducted on that line are called universities, and argument might be made to show that, in those which are universities in the widest sense, much of the instruction is special and not universally accepted as true. However, in such institutions as I have just indicated, when a full professor becomes a member of the faculty under an agreement for a longer or a shorter term of years, he does so with a clear conception of what he is to teach and presumably with a desire, or personal preference, to propagate the doctrines held by his employers. Under such circumstances, I assume no one will deny the right and the propriety of the founders or the donors requiring that the professors engaged shall consistently teach the chosen doctrines, or, in case a professor should at any time during the term of his engagement, owing to his having received new light, refuse to carry out his agreement and should depart from his instructions, the right and propriety of their insisting upon the governing board demanding the professor's resignation.

It would be very improbable that such an institution would

acquire as patrons any who would be likely to interpose objections as to the method of treatment by any of the faculty of any of the branches of study taught in the institution. Everybody concerned would understand exactly what was required of him, and should any of the professors experience a change of heart or mind in regard to any of the subjects of study under their charge, why, they themselves would know when it was time for them to proffer their resignations, and thus the contracting parties would be satisfied and all opportunity for unpleasant publicity would be avoided. Will anyone seriously question the right of donors and patrons, in institutions thus organized, to dictate the methods that should be employed and the policy that should be pursued in the cultivating or molding of the students' opinions by the professors engaged for the purpose?

But now I come to the burning question. In an institution of learning founded and supported either on individual bounty or the appropriation of public moneys, for the purpose of instructing our youth in the branches of learning usually embraced in the university curriculum, shall a full professor, permanently employed to teach in such institution, be permitted to enjoy unqualified freedom of opinion, with the right to give it expression in the classroom, or has a donor, or the students' parents, whose gifts and patronage support the institution, any right to interfere and demand for any reason a modification of such complete freedom?

To my mind it seems a little singular that any controversy should have arisen regarding the true solution of this question. An examination of the published opinions of the professors on the subject, however, shows me that the majority of them agree that there is but one side to the question and claim for themselves the most unqualified freedom in the premises, altho the fact that there are two sides to the question is proved by the resignation of many professors within the last four years from the faculties of some of our principal universities and colleges on account of difference of opinion as to what limitations, if any, should be placed upon their freedom of expression. I am aware that in Germany, the habitat of the university and

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It would be very improbable that such an institution would

acquire as patrons any who would be likely to interpose objections as to the method of treatment by any of the faculty of any of the branches of study taught in the institution. Everybody concerned would understand exactly what was required of him, and should any of the professors experience a change of heart or mind in regard to any of the subjects of study under their charge, why, they themselves would know when it was time for them to proffer their resignations, and thus the contracting parties would be satisfied and all opportunity for unpleasant publicity would be avoided. Will anyone seriously question the right of donors and patrons, in institutions thus organized, to dictate the methods that should be employed and the policy that should be pursued in the cultivating or molding of the students' opinions by the professors engaged for the purpose?

But now I come to the burning question. In an institution of learning founded and supported either on individual bounty or the appropriation of public moneys, for the purpose of instructing our youth in the branches of learning usually embraced in the university curriculum, shall a full professor, permanently employed to teach in such institution, be permitted to enjoy unqualified freedom of opinion, with the right to give it expression in the classroom, or has a donor, or the students' parents, whose gifts and patronage support the institution, any right to interfere and demand for any reason a modification of such complete freedom?

To my mind it seems a little singular that any controversy should have arisen regarding the true solution of this question. An examination of the published opinions of the professors on the subject, however, shows me that the majority of them agree that there is but one side to the question and claim for themselves the most unqualified freedom in the premises, altho the fact that there are two sides to the question is proved by the resignation of many professors within the last four years from the faculties of some of our principal universities and colleges on account of difference of opinion as to what limitations, if any, should be placed upon their freedom of expression. I am aware that in Germany, the habitat of the university and

professor, the liberty of the teacher to freely exercise his function has long been known by a specific name—*Lehrfreiheit*—but whether the question of the absolutely untrammeled freedom of the teacher to promulgate undesirable doctrines, or the unqualified right of the donor or patron to interfere with such freedom has ever arisen in Germany, I cannot say. There, as here, however, the teachers maintain their right to absolute, unconditional freedom of investigation and of teaching, and of giving free expression to their opinions, even tho offensive to others.

While I do not profess to know what may be the consensus of opinion of our professors, in every case, I believe they deny a donor's right to interfere, as donor, and try to prevent a professor's free expression in the classroom of his views as a partisan of a political party; or his free expression as to the soundness or unsoundness of untested theories and speculations indulged in by economic and other reformers; or his propagating as truths ideas that have never been reified and concerning which there is divergence of opinion among those who have especially concerned themselves with such ideas; or his adopting bizarre methods of imparting his teachings to his pupils in the classroom. While there are other illustrations, these will suffice to indicate to you how far extend the claims of professors as to their freedom from interference in their work, and it is perhaps unnecessary for me to remark that the claims would seem to include a professor who would exercise his calling without any reference to the requirements of common sense —a quality, by the way, that it is possible may be lacking in a man most critically educated and of sterling integrity, but which, nevertheless, to my mind, is absolutely essential to render a man's labor effective in our practical, workaday world.

Some of our professors go to the extent of declaring that not alone a donor, but even the state, has no right to interfere with their liberty of expression. Now, that seems to me to be going a great way; for, if that declaration be justified, we can see how society may be placed at the mercy of those insane criminals who are seeking its destruction; namely, the anarchists. The society of anarchists is largely comprised of

Russian students, and among them are men and women educated to a high degree, and if some of them, by concealing their true characters, should secure positions as professors in our schools and colleges, they could with impunity cast aside their masks, when once installed, and sow the seeds of anarchy in the minds of our sons and daughters. Now, would the most pronounced advocates of the professor's complete freedom of expression deny the right of the state to proceed criminally against such persons, who, under the guise of propagating advanced ideas of social or economic reform, would teach the doctrines of murder, of negation of state government, of the "absolute freedom of individual expression" and individual action, promising that from such a chaos of "free wills" there must voluntarily ensue order, social and economic equality, and a millennium? It will not do to say that, whatever the state might do, the donors or patrons of the school must wait until the term of such professor's engagement has expired in order to terminate his connection with the institution. It might then be too late, and in the meantime the seed that he has been permitted to sow may have taken root and in the future may bear fruit.

In a case such as I have outlined, which I acknowledge is an extreme illustration, it does not appear to me possible that there can be any diversity of opinion as to the right of a donor or patron to interfere with the professor's freedom of expression upon the very first intimation of the dangerous tendency of his opinions. But I do not think it necessary to adduce so extreme an instance in order to find reasons for the right of intervention, in a certain degree, on the part of the donor. I have serious doubts as to whether it is within the true province of a university to inculcate as learning any theory whose truth or falsehood can be disclosed only thru its practical application in the dim future, and as our keeping abreast of this progressive age in our educational plants and faculties depends so much upon the bounty of individuals, I cannot understand why such donors should not be permitted to exercise the privilege of requesting the members of the university faculties to confine themselves to teaching things that have stood some tests of

time, and concerning which the best cultivated opinion of the age is favorable. Many theories—social, political, economic, and financial—have been advanced and for a time have absorbed public attention, but in a few years have dropped out of sight and their advocates have been forgotten, or have adopted new theories that they seek to propagate with all the zeal that marked them as the apostles of the discarded ones. Perhaps some of the professors who now claim complete freedom of expression of opinion were students when some of the abandoned theories were the vogue, and possibly they were infatuated with their plausible presentation and thus lost much valuable time in their study. If there are any such professors, who sought for solid form and useful substance amid the hazy dreamings of theorists and were thus led to waste their time and energy by reason of free expression of opinion on the part of their professors, do they not think a greater meed of justice would have been measured to them if some practical donor of the school that they attended had put a veto on the professor's expressions? It does not seem to me that a negative answer to this question is possible. And it does seem to me that a professor who has suffered such an experience should be very careful about demanding the right to absolutely free expression of opinion for all professors, altho he himself may be sufficiently conservative to permit of his enjoying the right without danger to the rights of his pupils and of the supporters of his college.

You will see, therefore, that I am in favor of adopting the golden mean in this conflict of rights. Outside of the classroom the professor should enjoy that absolute freedom of expression thru the various publications and upon the platform which manly men in every walk in life insist upon and which harmonizes so perfectly with the spirit of our institutions, and before the class he should be permitted the utmost liberty in expressing his opinions upon all matters that come within the province that a university can legitimately occupy—all that has been taught, and all that has been done, and has stood the test of time and is accepted by those who represent the highest cultivation of our present civilization. But with the indoctri-

nation in the minds of students of such social, political, economical, or religious ideals as tend to subvert the purpose of the founders or directors of the chair he occupies, or which can have reference only to a more or less distant, revolutionary future, the professor and university should have nothing to do. Therefore, when in opposition to the wishes or without the consent of the supporters of the institution, any of the faculty persists in a course that must tend to impress upon the tender minds of the youth under his charge theories deemed to be false by the foundation whose servant he is, or which, if not strictly false to it, are deemed so by a vast majority of the most intelligent minds of the age, it seems to me that he has abused his privilege of expression of opinion to such an extent as to justify the governing board in terminating his engagement.

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III

BELIEF AND CREDULITY

I

The vital history of human development is to be sought in the history of beliefs. The inscriptions of Egypt or of Babylon, tho rendered in modern tongues, speak an imperfect message until illuminated by some insight into the beliefs which these cultures cherished. The amazing ruins of Copan, the serpent mound of Ohio, remain mute and inglorious until we can solve the riddle of the beliefs of their builders. Dead Pompeii becomes a living city when we people its streets with the hopes and fears, the beliefs and opinions of its last inhabitants. The history of the arts and the sciences, of society and of religion, specifically involves an account of the succession of beliefs and of the growth of belief-habits. The story of men's doings is likewise, in large measure, a reflection of their beliefs; conduct, whether of individuals or of masses of men, remains an undeciphered record until interpreted as the concrete expression of definite beliefs. The spring of action is motive, and the intellectual impetus to motive is again, belief.

Of the outward and of the inward marks of the stages of learning none are more notable than the beliefs which as the result of such learning come to be accepted and promulgated, and the attitude of inclination or disinclination which such beliefs foster in regard to the various and ever-enlarging problems which engage the interests of men. The possession of certain beliefs and a definite belief-attitude differentiates the educated from the uneducated, the scholar from the dilettante, the expert from the layman, the modern spirit from the mediæval, the traits of this generation from those of its immediate predecessors. For those who would search out the motives and the justifications of their beliefs, it is of constant importance to realize the more potent and the more patent tendencies and influences by which are shaped the opinions alike

of the many and of the few; to consider the characteristics which give to certain beliefs and belief-attitudes their logical cogency, their ethical worth, and their social power, and deprive other classes of beliefs from any possible participation in these desiderata. Such an inquiry naturally includes an outlook upon the regions of unwarranted belief, of error and prejudice and credulity.

A most attractive approach to the problem thus suggested may be found in a remarkable essay by Mr. C. S. Peirce.[1] Belief is there presented as a mental trait possessing and developed by plain advantages of an evolutionary or adaptively useful kind. Such at least would be the case for all simple and practical matters upon which the incipient rationality of primitive man probably cut its teeth. Logicality, Mr. Peirce tells us—and by that is meant a habit of mind that leads to the detection of truth, to thinking about things as they are, to bringing our thoughts into agreement with reality—" logicality in regard to practical matters is the most useful quality an animal can possess, and might, therefore, result from the action of natural selection; but outside of these it is probably of more advantage to the animal to have his mind filled with pleasing and encouraging visions, independently of their truth; and thus, upon unpractical subjects, natural selection might occasion a fallacious tendency of thought." Natural selection certainly has not interfered with the maintenance of untrue and illogical beliefs; and while we may admit some truthward tendency as part of the natural endowments of *homo sapiens,* that tendency by no means dominates his mental habits. Indeed, it is brought to its fruitage only after so much struggle and the learning of so many hard lessons of experience and the slow accumulations of ages of thinking, that it may be appropriately described as an artificial, weakly possessed, and imperfectly disseminated acquisition. We must also remember that practicality, like much else, is a matter of degree; groups of ideas and ways of thinking are more or less practical, and influence action more or less indirectly and by variously roundabout paths; and as the range of human thought widens and

[1] " The fixation of belief," *Popular science monthly,* November, 1877.

diversifies, deepens and becomes more complex, an ever-enlarging circle of human interests and concerns comes to be of this indirectly practical kind. Precept and practice, instead of being connected by a short and straight, stout cord, are no less effectively brought into mutual bondage by a complicated network of strands, many of them delicate in texture, elaborate in weave, and difficult to trace. For present-day purposes we may consider belief as characteristically of this type—complex in structure, subject to endlessly varying influences, modifiable by diverse factors and circumstances, responsive to social, hereditary, educational, and transitory as well as to more permanent, natural, and logical influences.

A prominent result and indeed a purpose of belief is the concordant settlement of opinion. Yet this result may be brought about—has often been brought about—by other than logical processes; or, speaking with reference to the experience of history, it may be said that it proceeds by methods which are condemned by the most approved logical (and ethical) sanctions of more advanced stages of knowledge, tho it receives the indorsement of the cruder and less enlightened logic of the period. For every work of science—and something analogous is true of reformatory movements in other directions—" great enough to be remembered for a few generations, affords some exemplification of the defective state of the art of reasoning of the time when it was written; and each chief step in science has been a lesson in logic " (Peirce). Of distinctive methods of fixing belief Mr. Peirce describes four: the method of tenacity, of authority, of inclination, of scientific verifiability. The first, when stated baldly, seems devoid of all merit; yet it expresses in extreme form a tendency which the student of belief is certain to encounter. The man of tenacity proceeds upon a faith that the opinion which he holds is the truth, that it is his duty to affirm this conviction, to reiterate it and to cherish it, to refrain from entertaining any considerations which may tend to shake the belief, and to seek all the influences that may strengthen it. Naturally this does not remain a coldly intellectual process, but becomes suffused with an emotional intensity which leads the devotee to look with pity or

contempt or horror upon any contrary opinion; even to scorn "weak and illusive reason," and to take refuge in the calm satisfaction of a firm and immutable faith. "When an ostrich buries its head in the sand as danger approaches, it very likely takes the happiest course. It hides the danger and then calmly says there is no danger; and if it feels perfectly sure there is none, why should it raise its head to see?" (Peirce.)

Such an attitude is possible only to an intellectual recluse and, to be consistently maintained, must be kept remote from earthly realities. Even when reserved for non-practical considerations, it breaks down under the social impulse; man was not meant to live alone and neither feels, acts, nor thinks alone. A common influence is necessary to fix men's beliefs alike, and the most expeditious method of producing a consensus of opinion has proved to be that of imposed authority. History is too full of the triumphs and the failures of this method—both equally sad to contemplate—to make it necessary to bring forward illustrations of its procedure. Dogma and manifesto, the trial for heresy and the Index Expurgatorius, the Inquisition and the stake, scholasticism and pedantry, the literalism of the expounders of the Scriptures or of the commentators of Aristotle, the refusal of the orthodox to look thru the telescope to see what they had no authority for observing, or the *E pur si muove* of Galileo—bring to mind realistically the heroic scenes of the dramas for which the method of authority furnishes the common plot. The limitations of this method are certain to be irritatingly felt by the few, however lightly tolerated by the many. The saving remnant that enjoys a wider outlook, and penetrates the mist with which dogma has enveloped the atmosphere, realizes that infallibility is theoretically an idle dream, and practically an artificial fiction: and in so far as others use their eyes and look in forbidden places, they observe that many of the beliefs of men do not fall under the shadow of the pronunciamento, but thrive in the sunshine of common sense. And if this be true of some opinions, why not of others? Unless doubt and questioning and inquiry on all subjects be utterly suppressed, the error of authority will be suspected, the means whereby a sounder belief may be discov-

ered will be at least dimly realized, and some resort to other methods of shaping belief be attempted.

But even when freed from the fetters imposed by authority, the minds of the leaders of men have not always followed in the footsteps of wisdom. They have been prone to overlook the tyranny of their own organization and inheritance, and have come to accept a more liberal and humane dictator and one of their own seeking—but a dictator none the less. They believed what was agreeable to reason; they accepted that to which they naturally inclined; and the philosophers of cultivation inclined to beliefs that were plausible, or comforting, or stimulating, or uplifting, or liberalizing. Congenial spirits found one another or a common leader, and schools of opinion came and went. The pendulum swung now this way and now that; here a dominant leader impressed his personality strongly upon his contemporaries; there a reaction from an extreme doctrine induced attention to new lines of thought; everywhere opinion came to be more responsive to influences from without —from practice and experience, from custom and institution. But whatever progress results under this régime is fitful, and hazardous, and ill-defined; it is only when the causes of our inclination are scrutinized and the objective worth, not the agreeableness, of our reasoning comes to be regarded as of primary import, that the pursuit of knowledge, and the fixation of belief in which it results, realize their allegiance to a higher power. Strange gods have been worshiped in strange ways by the followers of their inclinations; the intuitionalists and the mystics and those who believed themselves inspired—tho the inspiration of one was folly and anathema to another—have therein found exercise for their inalienable right to liberty and the pursuit of happiness. "Truth," Lowell explains, "is said to lie at the bottom of a well for the very reason, perhaps, that whoever looks down in search of her sees his own image at the bottom, and is persuaded not only that he has seen the goddess, but that she is far better-looking than he had imagined."

The method of scientific verification has been so wrought into the fiber of our thinking that we find it difficult to realize the power and dominion of other sovereigns; we the scientific-

ally minded are the Hellenes, and the others are the *barbaroi*. And rightly so; for the credentials of our sovereignty are the rewards of generations of patient study of the ways of nature, sanctioned by the logical anticipation of natural events, by the practical utilization of natural principles, by a conscientious, impartial, and objective analysis of our own mental processes. For the scepter in the hands of science is neither a symbol of wanton authority, nor a badge of unearned privilege, nor a license for extravagance and caprice, but an emblem of law and order—safeguarding to all the most cherished opportunities for right knowledge, right beliefs, and right actions, in what measure each is wise enough to consent to be thus governed. It is the prerogative of the scientific method that it enthrones the logical right—the true—as the moral law within enthrones the ethical right—the good. The crowning virtue becomes not conviction, nor the approval of authority, nor acceptability, nor general credence, but provability. The adoption of this as our sovereign method alters our ideals, even where it modifies but little our practices; it radically transforms our belief-attitude and our outlook, even tho we cannot as yet apply the one nor enter into possession of the other.

Yet we must not complacently assume that the advantages are exclusively incorporated with the one method, or that its adoption is unencumbered with conflict and sacrifice. We shall continue to feel the natural proneness to shape our beliefs by other and less strenuous standards; we are unwilling to, and we need not, abate our appreciation of what the other methods have accomplished in the trials and tribulations of the past. We cannot lightly shake off the tenacity of our convictions, however obtained, nor the inertia that easily, and the incapacity that necessarily, appeals to authority; we shall continue to yearn to believe what is agreeable and to resist unpleasant truths; we may still reserve some corner of our belief-chamber which shall be exempt from the intrusion of inquiry; but, on the whole, however we may defend these tendencies, or apologize for them, or struggle against them, we make some decent attempt to clothe them with the semblance of plausibility and to present them garbed in fashion scientific. "Yes," Mr. Peirce admits,

"the other methods do have their merits: a clear logical conscience costs something—just as any virtue, just as all that we cherish, costs us dear. But we should not desire it to be otherwise. The genius of a man's logical method should be loved and reverenced as his bride, whom he has chosen from all the world. He need not condemn the others; on the contrary he may honor them deeply, and in so doing he only honors her the more. But she is the one that he has chosen, and he knows that he was right in making that choice. And having made it, he will work and fight for her, and will not complain that there are blows to take, hoping that there may be as many and as hard to give, and will strive to be the worthy knight and champion of her from the blaze of whose splendors he draws his inspiration and his courage."

From this survey of the methods by which opinion comes to be established and disseminated, we emerge with an appreciation of how it arises that the history of belief—not unlike history in general—is an affair of war and peace; that it deals, on the one hand, with the accounts of the warfare of the scientific method with its rivals, and, on the other, with the internal development, the institutional absorption, and the colonization of its own spirit among outlying cultures. "Logic," Mr. White reminds us, "is not history. History is full of interferences which have cost the earth dear. Strangest of all, some of the direst of them have been made by the best of men, actuated by the purest of motives, and seeking the noblest results." And in the same strain Mr. Morley: "It is surely the midsummer madness of philosophic complacency to think that we have come by the shortest and easiest of all imaginable routes to our present point in the march; to suppose that we have wasted nothing, lost nothing, cruelly destroyed nothing on the road." "Benevolent assimilation" has always been, as it still appears to be, a difficult art.

From a consideration of the principles by which belief may be rightly and rationally fixed, we proceed to a contemplation of these principles in action. Counsel may be wise, but not practical. We know that the actual formation of true belief is beset with serious difficulties; that the process is likely to be

a response to a condition of affairs rather than to a statement of theory. Yet, tho it be a condition and not a theory that confronts us, a knowledge of the theory may be the most effective armament for meeting the condition. If knowledge is power it is as much because method is better than shift as that acquaintance with fact is better than ignorance. Now that science has entered into her kingdom and the vastness of her domain is willingly recognized,—for in a vital sense all that may be known by human ken, supported by evidence, presented in orderly arrangement, related to other knowledge, and developed by further study may be called science,—the busy problem is the infusion of the scientific method into all our ways of thinking, its application to all the various kinds of beliefs that affect our ideals, our working conceptions, and our actions. In so far as this is accomplished there is developed a scientific-mindedness, a rationality and symmetry of judgment, which shall give to the conception of what is possible and what impossible, what probable and what improbable, what established and what disproved, a maximum of clearness, soundness, accuracy, and practicality. It is this habit of mind that makes one keen-scented for right beliefs and secure, not from error indeed, but from rash credulity.

It would be most unscientific to overlook the fact that many departments of human interest are not ready for—and in their nature may not be readily subject to—the concrete and exact application of the scientific method. But this recognition offers no excuse for removing such classes of beliefs from the influence of the rationalizing spirit and of the same scientific habits of mind that have created such a beneficent and stimulating atmosphere in more exact realms of thought. Such an influence results in what may be termed a belief-attitude; and this in turn is reflected in one's standards of evidence, contributes to one's expertness of judgment, determines one's inclination or the will to believe, and at the same time gives rise to diversity among the opinions of the wisest as well as to the more glaring disagreements of all sorts and conditions of minds. But when we are in accord in regard to a general fundamental method, such diversities are not to be feared. What Mr. Mor-

ley aptly notes of personal companionship—that its painful element is not difference of opinion, but discord of temperament—is equally apposite of intellectual pursuits in general. "Harmony of aim, not identity of conclusion, is the secret of the sympathetic life." Such differences of opinion fall within the range of valid beliefs; those that do not—and many of them fall beyond the pale because of their discord of temperament, their alliance with other methods of fixing belief—may be variously characterized as error, fallacy, superstition, extravagance; and for the habits of mind that tend to the acceptance of false beliefs the terms illogicality and credulity are apposite. The former is commonly understood as referring to the proneness when confronted with the premises to draw false conclusions therefrom; the latter as a too great readiness to accept the premises on insufficient evidence. Yet in practice they are often found as close companions and appear at the summons of prejudice, ignorance, inertia, and of that weakness of judgment and vacillation of standards of belief that flourish, weed-like, when the scientific habit of mind is not assiduously cultivated.

It is important to illustrate that the forces that have been most productive of error in the past are not wholly shorn of their strength in the present; that these tendencies to act upon data credulously, with perverted logic and distorted evidence, however different the fashion of the garments in which they are paraded, are still recognizably the same persistent human frailties that detract from the complete appropriateness of the definition of man as a rational animal. It is further to be noted that quite too many of these misdemeanors are laid to the charge of ignorance; in truth ignorance cannot usually prove an alibi, but it remains to discover the influences that prevented the dispelling of the ignorance, and therein will be found the *vera causa* of the credulity. Mr. Lecky reminds those who would investigate the causes of existing beliefs that a change of opinion is apt to imply, more than anything else, a change in the habits of thinking. "Definite arguments are the symptoms and pretexts, but seldom the causes of the change." "Reasoning which in one age would make no impression whatever,

in the next age is received with enthusiastic applause." As we travel in retrospect along the stepping-stones from myth to science, from credulity to logicality, we find rather little disproof and very much outgrowth.[2] It is because we have a more appropriate, that is, a truer way of regarding a certain cluster of phenomena, that we discard the old way; and this truer conception, reached partly by new fact, partly by new argument, partly by new insight, partly by new applications of method, is the logical legacy which the successive "heirs of all the ages"—each in turn "in the foremost ranks of time"—bequeath to their descendants.

The word-learning of the scholastics is reflected in their explanation of the existence of fossils by recourse to a "stone-making force," or a "lapidific juice," or a "seminal air," or a "tumultuous movement of terrestrial exhalations"; the theologizing proclivities of the upholders of scriptural literalism appear in their accounting for fossils as "sports of nature," as models made by the Creator before he had decided upon the most suitable forms for the animals to assume, or as snares hidden by the Almighty to tempt the unorthodox. Voltaire argued that "fossil fishes were the remains of fishes intended for food, but spoiled and thrown away by travelers; that the fossil shells were accidentally dropped by Crusaders and pilgrims returning from the Holy Land," and one Beringer indited ponderous tomes to prove that they were "stones of a peculiar sort, hidden by the Author of nature for his own pleasure." Beringer's work deserves a prominent place in the museum of credulity; for it is related

[2] What Dr. Holmes observes of the homeopathic extravagances is characteristically true of many another error. "Were all the hospital physicians of Europe and America to devote themselves, for the requisite period, to this sole pursuit, and were their results to be unanimous as to the total worthlessness of the whole system in practice, this slippery delusion would slide thru their fingers without the slightest discomposure, when, as they supposed, they had crushed every joint in its tortuous and trailing body." "Many an error of thought and learning has fallen before such a gradual growth of thoughtful and learned opposition. But such things as the quadrature of the circle, etc., are never put down. And why? Because thought can influence thought, but thought cannot influence self-conceit; learning can annihilate learning, but learning cannot annihilate ignorance. A sword may cut thru an iron bar, and the severed ends will not unite; let it go thru the air, and the yielding substance is whole again in a moment" (De Morgan).

that some of his mischievous students prepared baked-clay fossils of fish, flesh, and fowl, most fearfully and wonderfully made—and even specimens with Hebrew and Syriac inscriptions upon them—and buried them in the professor's favorite digging places. Illustrations of the miraculous fossils appear on the plates of his curious work,[3] which the author was very zealous in suppressing when the deception became known; but what was the fate of the students history telleth not. Now these fossil views seem to us not merely disproved, but absurd; not merely weakly supported, but distorted. We cannot without serious effort assume the point of view under which they might be considered as remotely plausible. The prepossessions that opened men's ears to such hypotheses are not only foreign to present-day conceptions, but—and this has been frequently overlooked—are antagonistic to the essential spirit of scientific verifiability. The philosophers to whom Charles II. propounded his problem—why a bowl filled with water to the brim would not overflow when a live fish was put into it—were not merely credulous, but were innocent of the habit of thinking that resorts promptly and naturally to verification. It is not easy to reach a decision in regard to the erroneous views of the past, as to how far prepossession blinded men to actual evidence, how far decisive facts were not available, how far logical methods were weakly handled; each of these was frequently present and acted both as cause and effect. This, however, is deserving of emphasis: that when the method of science is put in the first place, significant facts will be observed and looked for, arguments pro and con will be weighed, the dangers of prepossession will be realized. Not that this will always be done wisely and well, nor that error will necessarily be avoided; but that the steps that are taken, even tho they be small and tentative and meandering, are more likely than on any other method to be in the right direction. Our scales may be crude, our weights only approximate; but even so, the result is more likely to be trustworthy than if we abandon them and resort to guesswork, or, retaining them, put down our own fist on one end of the beam.

[3] The *affaire* Beringer is described in White, *A History of the warfare of science with theology*, 1 : 216.

It thus seems proper to speak of the combined logical and psychological weaknesses that tend to the acceptance of unreal evidence and of irrelevant explanation as credulity; and the problem of problems, alike in the voyages of discovery and in everyday cruising on waters great and small, is to equip the pilot so that he may steer his course by right belief and not by credulity. The intellectual mariner's compass, for all purposes alike, is the method of science; but none the less pilotage is an art. Many shores are imperfectly charted; there are reefs and shoals, storms and fogs; breakages in the machinery and lack of training in the crew. These are the dangers of the seas—and shipwrecks are not uncommon; but how much more imminent the dangers, and how almost impossible the traffic, without any compass or with a less reliable one! It is the worthy ambition that brightens the hopes of many a scholar to contribute, in what way it may be possible for each, some aid to the extension, the greater availability, the greater convenience and safety of the highways or of the equipment of intellectual navigation.

II

From what has been presented it might be inferred that the contemplation of error is more instructive than the story of the evolution of truth; and for certain purposes this is really the case. Error and credulity have thus far been utilized as a background against which to set off right belief; it will be useful to examine the background itself. Credulity is most generally exercised in regard to the acceptance of statements by others. When shall we believe what we are told, and when shall we suspect, discredit, deny? Again no golden rule; no automatic switch that makes connection when truth presses the button, but refuses to work for the touch of error; but also again, the possibility of reaching principles that may train the judgment and guide practice. Clifford has formulated these in a simple and acceptable fashion. You may believe another when "there is reasonable ground for supposing that he knows of the matter of which he speaks, and that he is speaking the truth so far as he knows it." A man may deliberately lie; he

may belong to the class to which Huxley refers when he speaks of "the downright lying of people whose word it is impossible to doubt"; he may be more or less consciously or subconsciously misled by his imagination; he may be hopelessly deficient in his powers of observation, or in his knowledge of fact, or in his capacity to handle evidence and argument; and none of these ethical or logical shortcomings seems to interfere at all in certain persons with their powers of holding and publishing opinions on all manners of subjects—even on those on which no human soul has the possibility of possessing knowledge. To Clifford's dual conditions of logical responsibility must be added another pair; namely the distinction as to how far the issue involved is a matter of fact or of the interpretation of fact. Both facts and their interpretation, or arguments, appear as prominently on the side of error as of truth; yet, tho not reducible to anthropometric measurements, the physiognomies of the two are recognizably different to the trained observer.

It seems ludicrously easy to collect facts of any desired quality and to point them in any desired direction. Dr. Holmes effectively describes these abuses: "Foremost of all, emblazoned at the head of every column, loudest shouted by every triumphant disputant, held up as paramount to all other considerations, stretched like an impenetrable shield to protect the weakest advocate of the great cause against the weapons of the adversary, was that omnipotent monosyllable which has been the patrimony of cheats and the currency of dupes from time immemorial,—Facts! Facts! Facts!" Yet in the crucible of logic it is possible to separate the dross from the gold. The arguments employed have a like suspicious appearance: they "have been so long bruised and battered round in the cause of every doctrine and pretension, new, monstrous, or deliriously impossible, that each of them is as odiously familiar to the scientific scholar as the faces of so many old acquaintances, among the less reputable classes, to the officers of police." The former type of credulity—the rash acceptance of facts—is the more simple and the more usually considered; the latter type—the rash

acceptance of explanations of interpretations of facts—is frequently the more vital and instructive. Ingenious and successful lying is doubtless a fine art: yet the more difficult part of it is the gaining of credence for one's inventions. That depends largely upon the belief-attitude of the public and upon the psychological climate in which they live. It is quite obvious that the conscienceless prevaricator or charlatan must play upon the prejudices and vanities and ignorance and cupidities of his clientèle. He presents what they wish to believe, appeals to their passions and emotional weaknesses, and when necessary berates his opponents with no gentle hand, and indulges in what Huxley speaks of as "varnishing the fair face of truth with that pestilent cosmetic, rhetoric." But the psychologist's interest is predominantly on the other side, with the duped rather than with the knave; especially if it be a case in which contagion has a fair field and all judgment becomes lost in a psychic epidemic of credulity. Such we are apt to associate with dark ages and ignorant communities, with isolated cultures and inhospitable mental climates. A few instances from the days of the telegraph and the omnipresent daily paper may accordingly be the more instructive.[4]

III

The name of Leo Taxil—a pseudonym for Gabriel Jorgand—may be unknown to many readers; it should not remain so, for the judgment which has been pronounced upon Mme. Bla-

[4] Dr. Holmes's *Homeopathy and its kindred delusions*, first published about sixty years ago, was substantially a study of credulity as applied to medical matters. Readers of this will recall that besides the minute exposure of the baselessness of the Hahnemannian cult, there are there considered (1) the royal cure of the King's Evil; (2) the Weapon Ointment and the Sympathetic Powder, the first rather lukewarmly considered by Bacon, the latter brought into notoriety by Sir Kenelm Digby; (3) the Tar-water mania of Bishop Berkeley; (4) the history of the Metallic Tractors, or Perkinsism. These are thus summarized: "The *first two* illustrate the ease with which numerous facts are accumulated to prove the most fanciful and senseless extravagances. The *third* exhibits the entire insufficiency of exalted wisdom, immaculate honesty, and vast general acquirements to make a good physician of a great bishop. The *fourth* shows us the intimate machinery of an extinct delusion, which flourished only forty years ago; drawn in all its details, as being a rich and comparatively recent illustration of the pretensions, the arguments, the patronage, by means of which windy errors have long

vatsky—also a modern of the moderns—may with modifications be applied to Taxil; that he "has achieved a title to permanent remembrance as one of the most accomplished, ingenious, and interesting impostors in history." Only Taxil's accomplishments were of a rather gross order; his boldness surpassed his ingenuity; and the interest is centered in his deeds rather than in his personality. Like most disciples of Cagliostro, his career was a checkered one. In 1885, at the age of thirty-one, he was engaged upon his *magnum opus,* having already appeared as a violent radical in politics—he is a product of France—a rabid anti-clerical, and the author of a libelous pamphlet on the *Secret amours of Pius IX.* The suggestion for his *chef d'œuvre* was the encyclical of Leo XIII. (1884) directed against the Freemasons, who with others were placed under the ban as subjects of the realms of Satan. After a full confession of the errors of his former ways, Taxil was received back with rejoicing into the bosom of the Church, and thereupon published four volumes of wholly imaginary revelations, revealing the sacrilegious orgies and devil-worship of the Masonic mysteries. For this he received in person the solemn benediction of the Vatican, as well as the material rewards of the sale of one hundred thousand copies of his work and the honor of its translation into English, German, Italian, and Spanish. If it be stated that the German version omitted the volume on the "Masonic sisters," for the reason that it was not thought proper to outrage the moral sense of the community by recounting "the filthiness of the hellish crew," the character of the work may be surmised. Taxil extended the sphere of influence of his imaginary demonolaters to all parts of the world—even from Singapore to Charleston, at which latter point the Masonic Grand Master figures as a Satanic Pope, who has at his disposal a telephone, invented and operated by devils, whereby he puts a girdle round about the earth in forty seconds, and a magic bracelet by which he summons

been, and will continue to be, swollen into transient consequence. All display in superfluous abundance the boundless credulity and excitability of mankind upon subjects connected with medicine." The account of Perkins and his Metallic Tractors falls in well with the instances here considered.

Lucifer at his pleasure. Intoxicated by his success and the credulity of his adherents, Taxil's invention runs riot; and he tells the story of a serpent inditing prophecies on the back of a demon who "in order to marry a Freemason, transformed himself into a young lady, and played the piano, evenings, in the form of a crocodile." Taxil gained confederates in other countries, who contributed to the movement according to their several needs and talents. One of the most interesting figures in the story is the fictitious personage, Diana Vaughan—the *pucelle* of the drama and of its *dénouement*. She was given out to be the descendant of Thomas Vaughan, the seventeenth-century mystic, and the goddess Astarte; her Luciferian origin and principles were shown by her horror of all religious observances, by the devils who attended her, and thru whose aid she made excursions to Mars, where she "rode on Schiaparelli's canals, sailed on the Sea of the Sirens, and strolled among the gigantic inhabitants of the planet." Many remarkable incidents of her curious personality are retailed for the benefit of the believers; while poetic justice is appeased by her final conversion to the Church thru the instrumentality of the spirit of Jeanne d'Arc.

When it became necessary to materialize Diana Vaughan for the benefit of the privileged few and to satisfy the skepticism of others, she was cleverly impersonated by "a bright American girl, employed as a copyist in a Parisian typewriter establishment, who wrote all the letters at Taxil's dictation and received a monthly salary of one hundred and fifty francs for her services." This was hardly a fair appreciation of American talent, considering that the money remitted to Diana Vaughan in ten years amounted to more than half a million francs. In 1896 Taxil was a prominent figure in a great anti-masonic congress held at Trent, where indeed he was treated as a hero and a saint. On April 19, 1897, in Paris, there was held by invitation of Diana Vaughan a highly sensational function, at which it had been announced that the miraculous lady would appear. When the moment arrived, Taxil stepped forward and said: "Reverend Sirs, ladies and gentlemen! you wish to see Diana Vaughan. Look at me! I myself am that

lady." Then followed an explicit account of the twelve years of imposture and an impudent expression of thanks to the clergy for the unwitting aid in his deviltries; a forced retreat to a neighboring café to escape the vengeance of the crowd; a momentary furore, some discussion pro and con; and then, so far as can be learned, the world wagged on and the story ends.[5] Surely this is a remarkable instance of *fin-de-siècle* credulity, and one that will hardly suffer by comparison with mediæval superstition. Its importance in the present connection lies in the illustration which it furnishes of what may happen in extreme cases when verifiability and scientific-mindedness are wholly ignored, and the methods that appeal to authority and to prepossessions are allowed to run riot. Then standards of probability, as well as the critical attitude, are wholly absent or hopelessly distorted, and credulity has the open door.

Prepossessions are not always so prominent in the evolution of myths that gain acceptance by preying upon credulity. The presence of an indolent atmosphere and of a sympathetic milieu is all that is necessary. Of this the story of Kaspar Hauser, the "wild boy of Nuremberg," furnishes a fairly modern instance; for the Nestors of our generation may easily remember the interest which his case aroused thruout Europe. The commonly accepted tale made him out as an abandoned child, cruelly confined in a dark cell, cut off from all association except with the monster who gave him his daily bread. He became the classic example of the condition of a human being in the absence of all education; he was heralded as a child of nature, as an example of the innocence of man before the fall, as a realization in the flesh of Rousseau's Émile. It was proposed to adopt him as the child of Europe, and he was actually adopted as a son by the Earl of Stanhope. The interest in his case was maintained by the accounts of his marvelous psychic powers, as also by the speculations as to his origin, which brought slander upon many a noble house. He could see a gnat in a spider's web a long distance off, and after twilight; he could distinguish between a pear and an apple and

[5] The account of Taxil is derived from E. P. Evans, "Survival of mediæval credulity," *Popular science monthly*, March and April, 1900.

a plum tree by their odor at a distance at which others could barely see the trees; he was overcome by the exhalations of a graveyard several streets off; he could distinguish metals by their different attractions for his fingers, while the vicinity of a hardware shop brought on convulsions; when examined by a homeopathist, he proved in his own person the truth of homeopathy. As to the speculations as to who he might have been, it is enough to say that the gossips and the scholars were equally busy and, with characteristic Teuton thoroness, a bibliography of nearly three hundred numbers was accumulated, recounting the various versions of the story of Kaspar Hauser.

The sifted facts out of which, or in spite of which, the various myths sprouted and flourished, are few and luminous. The boy appeared on the streets of Nuremberg with a letter in his hand, which he had doubtless written, and was put in prison as a helpless wayfarer. The original protocol shows that he walked a mile on that day, recited the Lord's prayer, spoke with dialectical peculiarities, said that he had gone to school, showed his fondness for horses, and admitted that the object of the letter, addressed to a captain of cavalry, was to secure him a post in the service. He seemed to feign simple-mindedness and to avoid answering questions. In the one letter was another purporting to have been written sixteen years previously by the mother of the boy, but obviously a forgery. This started the story to which the Burgomaster gave wings by a proclamation elaborating the " wild boy of nature " theory, and embellishing it with fantastic " details calculated to give verisimilitude to an otherwise improbable tale." Learned ignorance in the person of a Professor Daumer—to whom Kaspar was intrusted for his education—still further distorted the simple facts. Tho at first the boy could not speak (this is Daumer's story) and could only understand those who treated him as an infant, this helpless and untutored babe, after three days, performed on the piano, soon after knitted a stocking, and in four weeks was able to entertain the Burgomaster with an account of his years of solitary confinement. Within a month this worthy, but mentally blind, professor had transformed the wild boy into a model of social elegance, who

carried on witty conversations, made graceful allusions to the ancient Romans, and played checkers and chess. The story is too full of detail to be further considered; but enough has been given to show the glaring inconsistency of the theory of explanation either with the real facts, which almost no one knew, or even with the alleged facts, which were widely circulated. Kaspar's lot simply chanced to fall in pleasant places, and, by accepting the part which the credulity of his surroundings thrust upon him, he was buoyed into fame and made the subject of a *neugeschichtliche Legende*.[6] It is proper enough to add that the backward stage of a practical psychology seventy years ago alone made possible the acceptance of any such caricature of an untutored child of nature. Doubtless many gave no credence to the tale; but its ready acceptance in almost all circles gives it a permanent place in the history of credulity. In contrast with the *affaire* Taxil, the Kaspar incident appeals more to the intellectual than to the emotional weaknesses, and involves a larger share of misinterpretation of fact; while the lack of proper standards to estimate the improbability of what is given out for fact is glaringly obvious in both cases. This personal characteristic of the duped is often more forcibly described as gullibility.

To complete the collection of types of credulity, we should have an instance in which a system of interpretation of facts—not a mere narrative—in itself startling and contradictory to ordinary experience, gains widespread credence, and that in spite of pronounced inconsistency with verifiable observation and common sense. These conditions are remarkably well satisfied by the recent promulgation of the doctrines of Christian Science. Even in this field of intellectual effort the land of the free and the home of the brave has contributed an article worthy to compete with the foreign product. Eagle-like, this system spreads its wings and soars free from the bonds of sense or earth-bound realities, free from human logic and the errors of mortal mind, free from the material impediments which the Author of nature has inconsiderately set in our

[6] The true Kaspar Hauser is disclosed in Antonius von der Linde's *Kaspar Hauser*, 2 vols., 1887.

paths, free to make things so by thinking them so, free to set method and learning and experience at naught. And surely it calls for braveness of no common order to resist the seductive appeals of eye and ear, to sail steadily on heedless of the calls of the sirens of rationality, convinced at the outset that things cannot be as they are, and refusing the nod of recognition to the plebeian idols of the ills of flesh. It is not necessary in this connection to recount the beliefs of this system; it is sufficient to point out that when thousands of intelligent persons give practical adherence to, and enroll themselves under the banner of, one who teaches that a bunion would be an adequate cause of insanity, if only we held the same belief about the bunion as we do about congestion of the brain; that smallpox is contagious by reason of the same agencies as make weeping or yawning contagious; that fear may be reflected in the body as fractured bones, just as shame is seen rising to the cheek; that anatomy and physiology and hygiene are the husbandmen of sickness and disease, while the reading of a text-book of Christian Science is equally effective in producing health; or that when a healthy horse takes cold without his blanket, it is on account of the poor creature's knowledge of physiology—then such persons can hardly complain if they are cited as instances of modern credulity.

IV

Such, then, is the background against which logical belief shines forth with contrasted splendor; such are, admittedly in their extreme form, the results of following after strange gods and deserting the narrow path of strenuous rationality, of critically trained judgment, of adherence to verifiable standards of belief. The tale needs no adornment, and the moral is sufficiently pointed to require no hard blows to drive it home. It will be profitable in continuation to survey, tho perforce briefly, the middle distance, the practical field of compromise and of the necessity for action, in which we must needs travel up hill and down dale and cannot take the level road which we wish were possible, in which we must risk error constantly if we would move at all.

In entering the practical arena the philosopher is indeed insensitive or unobservant who does not become conscious of a decided climatic change. He is probably already familiar with various uncomplimentary remarks concerning his unfitness to assume a due share of the responsibilities of life, from the tribute of Frederick the Great ("If," he said, "I wanted to ruin one of my provinces, I would make over its government to the philosophers") to the fashionable jibes against the scholar in politics. There is certainly much exaggeration in the current notions of the incompatibility of the reflective and the directive (perhaps it would be unwise to say the active) temperament; and there is much reason for the claim that the science-molded philosopher may say, "*nous avons changé tout cela.*" Indeed a recent writer has forcibly maintained that the nearest analogue of the man of science is the "so-called man of business, and the chief distinction between the two is that the one deals with the unfamiliar, the other with familiar things."[7] This significant difference was long ago presented by De Morgan as one of the advantages that a logical training secures. "I maintain that logic tends to make the power of reason over the unusual and the unfamiliar more nearly equal to the power over the usual and familiar than it would otherwise be. The second is increased; but the first is almost created." This is but one of the differences in training, interest, thought-habit, and temperament that estrange the scholar from the man of affairs. Yet much of this unfamiliarity is a matter of technique, and as such belongs equally to the arts of life and to the sciences; the ignorance of one another's techniques is no cause for lack of sympathy and comprehension of the aims and efforts of practical and scientific specialists. A further contrast is emphasized by philosophical historians. "In practical life, the wisest and soundest men avoid speculation, and insure success because, by limiting their range, they increase the tenacity by which they grasp events; while in speculative life the course is exactly the reverse, since in that department the greater the range, the greater the command, and the object of the philosopher is to have as large a

[7] F. W. Clarke, *Popular science monthly*, February, 1900.

generalization as possible"—this is Buckle's formulation. "Nothing can be more fatal in politics than a preponderance of the philosophical, or in philosophy than a preponderance of the political spirit," says Lecky. Mr. Fiske, in commenting upon the relations of Huxley and Gladstone (whom Huxley himself spoke of as a "copious shuffler"), says: "One could no more expect a prime minister, as such, to understand Huxley's attitude in presence of a scientific problem, than a deaf-mute to comprehend a symphony of Beethoven."

And yet these occupations are not mutually exclusive; philosophy and politics are not December and May, and the temperate zone, in which (in theory at least) we pass our existence, is a composite of the two. Indeed, a divorce of theory and practice is disastrous to both parties of the alliance; theory is the more real and vital for its consideration of and adaptation to tangible conditions; and practice is more rational and more liberal, embraces a larger expediency than if responsive only to the *status quo*. Learning dissociated from doing is threatened with the decadence of mere erudition, pedantry and disputation. Exercise is equally good for mind and body; but there is danger of falling in love with the mere mechanism of thought—the absorption in the feeling of one's mental muscles contracting and of plodding in treadmill routine, ever moving, but never advancing. The danger of practice dissociated from principle is that of becoming time-serving, narrow, partisan, short-sighted; it tacks for every wind, loses its bearings, and sacrifices larger for smaller gains. Emerson said of the English some fifty year ago: "They are impious in their skepticism of a theory, but kiss the dust before a fact"; and Emerson's own countrymen are curiously like and curiously unlike the people whose traits he characterizes. Mr. Morley deplores the same tendency from a more modern point of view. He notes the inclination to reply to an advocate of improvement by "some sagacious silliness about recognizing the limits of the practical in politics, and seeing the necessity of adapting theories to facts. As if the fact of taking a broader and wiser view than the common crowd disqualifies a man from knowing what the view

of the common crowd happens to be, and from estimating it at the proper value for practical purposes." These various opinions, when judiciously strained, leave a weighty deposit of truth; and they have a direct bearing upon the issues of right and wrong belief. They make it abundantly clear that the relations of right knowing to right doing as urgently demand illumination to-day as when Socrates mystified the Athenian youth by maintaining that no man would willingly do wrong or wittingly hold to error. On the one hand, we are told that for wild speculation and rash credulity the practical man takes the lead, whether it be by subscribing in coin to schemes for extracting gold from sea water, or "backing" the rain-makers or the "Keeley motor"; or in subscribing in faith to the reality of curative mental vibrations, the accounts of signaling with the inhabitants of Mars, the depositing of gray matter in Helen Keller's finger-tips, or to any other of the items of the progress of science with which newspaper paragraphers regale their readers when copy is scarce. On the other hand, the men of books and apparatus are charged with the pursuit of fads, of a contempt for journals and ledgers, of an ignorance of business ways, and an incapacity to deal executively with men and things. The truth is that there are all shades and grades of men in both careers; and the important things to be observed are tendencies and their causes, not individuals and their peculiarities. It is these tendencies that are reflected in opinion and conduct indirectly, and directly in the relations that are entertained and acted upon, of theory to practice.

This relation—between the theoretical and the practical factors in the progress of knowledge—may be pictured as similar to that pertaining between master and dog. The dog runs ahead of the master, takes short excursions on his own account, comes to a turn of the road and wanders hesitatingly about until he detects the direction in which his master turns; then dashes confidently onward with an air of having intended to go that way all along, and probably imagines—and the appearances are in his favor—that he is leading the man. Yet the wise dog does not wander far out of scenting distance, is on the alert for the call of the master, and quickly retraces his steps

when he finds that his master has turned the other way. It is doubtless true that the dog may light upon valuable discoveries; and the master will do well to heed any unusual signs of alarm or excitement on the part of his keen-scented companion; and if it happens that the shades of night close in upon him or that his own sight grows dim, he that walks in darkness is fortunate in having so trustworthy a guide. From which we may learn that the formation of belief in practical affairs, while seemingly independent of theory and indeed running ahead of theory for short stretches in a restless striving to enrich experience, is none the less directed by theory, and prospers best when following, tho with judgment and self-reliance, the indications of principles and formulæ.

The mutual recognition of the functions of theorist and practitioner is one of the desired and not improbable consummations of modern civilization, and upon it depends in considerable measure the practical fate of right and wrong beliefs. It is still pertinent to repeat Buckle's complaint that "a theorist is actually a term of reproach instead of being, as it ought to be, a term of honor; for to theorize is the highest function of genius, and the greatest philosophers must always be the greatest theorists"; yet, in so doing, we may add the condition that the philosophers shall theorize wisely and with appreciation of the actualities of existence, not dogmatically or capriciously. In brief, there is scientific theorizing, as there is scientific practice; belief and credulity, truth and error, economy and waste, profit and loss, are possible in each. Yet in the end, rational progress in belief and practice, tho truly a question of proportion, must take its illumination not diffusely from countless scattered sources, but directly from a central luminous principle. "The devotion to the practical aspect of truth"—to cite again from Mr. Morley—"is in such excess as to make people habitually deny that it can be worth while to formulate an opinion, when it happens at the moment to be incapable of realization for the reason that there is no direct prospect of inducing a sufficient number of persons to share it." "As if the mere possibility of the view being a right one did not obviously entitle it to a discussion." "The evil . . . comes of not see-

ing the great truth that it is worth while to take pains to find out the best way of doing a given task, even if you have strong grounds for suspecting that it will ultimately be done in a worse way." "It makes all the difference in the world," says Whately, "whether we put Truth in the first place or in the second place." Mr. Morley thus protests against what he calls the House of Commons view of life, which subordinates principle to expediency—which may be unfortunate, but necessary—but in so doing sacrifices the paramount significance of principle—which is both unnecessary and pernicious.

The practical arena wherein truth and error, right and wrong, the better and the worse cause, principle and expediency, are engaged in combat is obviously too complex to admit of ready description or analysis; the few groups of combating influences that have been brought within the field of view occupy but a modest corner of the arena. Other equally important contests are going on at the same time; the ethical aspects of belief are nearly as complex as the intellectual, and as worthy of consideration; and people still find an interest in discussing how far truth should be disseminated when it undermines traditional convictions seemingly essential to happiness or even to virtue; how far, in Clifford's words, "Truth is a thing to be shouted from the housetops, not to be whispered over rose-water after dinner, when the ladies are gone away," and how far the dissemination of right belief is itself controlled by considerations of practical as well as of theoretical morality. Philosophers of so opposite a calling as a Harvard psychologist and a Parliamentary leader [8] unite in telling us that, in the last analysis, with regard to disputed questions of a not too practical sort, men do and have a right to believe, at their own risk, that which seems to them most elevating, fitting, satisfying, and rational; that in this process we all follow custom and temperamental impulse, tho we cover our retreat with arguments. Into these enticing ramifications of the central problem of right and wrong belief, however germane to the comprehension of the forces that make for truth and error, it is not feasible at present to enter. The issues in which these various

[8] James, *The will to believe;* Balfour, *The foundations of belief.*

factors—and especially the aspects just presented of the relations of theory to practice—culminate is that of the formation of belief-standards. It is in the common possession of these that the logical man of theory and the logical man of practice should find their sympathetic companionship; and to the appreciation of this underlying requisite for harmonious and profitable intercourse, nothing will contribute more directly and effectively than a comprehension of the relations that do and should exist between the guiding principles of belief and their wise embodiment in conduct. If the leaders of men, leaders of small companies and of large ones, those who are listened to and likewise listen to others, can be induced to absorb somewhat of the spirit and the sensitiveness to real distinctions that result from the successful devotion to the aims of science, the danger of the ready acceptance of false beliefs, the fostering of credulity, would be materially lessened.

In an age when many marvelous things have been accomplished, some of them on the surface as unexpected and as unconnected with other knowledge, indeed as seemingly contradictory of such knowledge, as the ostensible miracles and startling paradoxes that are paraded as demonstrable truth, it is natural enough that the man in the street should be bewildered and not know what to believe nor whom to believe. Between the Scylla of ignorant and obstinate skepticism and the Charybdis of ignorant and rash credulity, the channel seems perplexingly narrow; nor is it always possible to assume the expertness and disinterestedness of those who offer themselves as pilots. The possibility of seeing one's bones thru the skin seems as remote as the possibility of perpetual motion; telepathy no more wonderful than wireless telegraphy; the predictions of the astrological almanac as credible as the determination by the spectroscope of the physical conditions of other planets; the phrenological faculties as satisfying as the results of the physiological study of brain-localizations; the mental vibrations of the "absent treatment" healer as fairly supported by the results as the therapeutic action of drugs; the presentation of the mathematical triturations and the homeopathic potencies as learned and convincing as the enigmatic formulæ and manipu-

lations of the chemist. And yet these resemblances are quite superficial, the analogies of their likeness quite misleading. On the one shore lies the orderly kingdom of rational belief; across the border the chaotic realm of credulity.

Anyone who cares to take the trouble of examining the literature (*sic*) of the propaganda of logical unorthodoxy can readily satisfy himself of the reality and the character of the realm over which credulity holds sway. He will observe the truly unbalanced, the "cranks," those possessed with what has been described as the "unconquerable determination of the human race to believe what it knows is not so," the innocently and naïvely deluded, the faddists and extremists, the seemingly normal and wholly intelligent. The shades and grades of believers are as pronounced as on the other shore. And yet to the man of sturdy intellectual virtue these distorted, tho not wholly valueless, beliefs offer no temptation. And equally true is it that the logically molded thinker knows that it is useless to demand any ready-made prescription which shall save all men from credulity, not only in extreme cases—which most people do not really fear—but in the intermediate and more frequent and actual perplexities of the practical life.

The nature of the antidote which most is worth the seeking it has been the purpose of this essay to set forth. And last as first should it be emphasized that there is in many of the vital and typical problems of knowing and doing, an objectively best method of fixing belief to which we may reasonably approximate in practice. Neither the logical requirements of philosophical thought nor the actualities of the practical life, when rightly interpreted, appear to be seriously antagonistic to—indeed are wholly compatible with—the absorption of the principles rooted in the scientific analysis of belief. This infusion of the blood of science permeates the organic structure of the belief-attitude, and creates a sturdy affinity for right belief and a deep-seated aversion for the intellectual manners that error, attractive to credulity, is apt to bear. In truth this protecting ægis is in some measure an æsthetic trait—a certain intellectual fastidiousness which, as is also true of the ethical life, becomes a potent ally of virtue. And this logical virtue becomes

recognizable in the ability to guide action and belief by reference to fundamental principles; it requires the quality of mind that easily holds the impress of an argument, whose beliefs are deep-rooted in the soil of human experience critically interpreted.

When confronted with the noisy demonstrations of some new revolutionary claimant for public favor, the well-bred mind, tho plastic to worthily formative influences, is not easily disturbed in its convictions, nor readily affected by the contagion of popular approval. Even tho unable to explain fully the status of the ambitious aspirant, it does not become panic-stricken and lightly transfer its allegiance, nor madly follow a fashionable prestige, however brilliantly heralded. Rather is comfort sought in the reflection that often before have meteors flashed across the sky and disappeared, and still the stars shine fixedly. Across a gap of twenty centuries it finds the touch of nature that renders the whole world kin, and repeats approvingly the sentiment of Lucian: "To defend one's mind against these follies a man must have an adamantine faith, so that, even if he is not able to detect the precise trick by which the illusion is produced, he at any rate retains his conviction that the whole thing is a lie and an impossibility." Such a man knows full well that the baser metals cannot be converted into gold; and tho at credulity's

> "booth are all things sold,
> Each ounce of dross costs its ounce of gold,"

he realizes, too, the potent reality of truth; that truth is neither a metaphysical abstraction nor a matter of taste, and least of all a matter of expediency. While judiciously responsive to the practical demands of the conditions under which belief must be wrought out and expressed, he is assured with Lowell that "compromise makes a good umbrella, but a poor roof"; while sympathetic with the more ultimate discussion of the belief process, he holds clearly in mind the functional utility and categorical imperative of right belief. *Das Wahre fördert.*

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IV

MY SCHOOLS AND SCHOOLMASTERS

In what year it was I do not remember, except that it must have been in the late forties, nor how old I was I cannot now tell, but this fact does stand out prominently in my memory, that on one stormy day—a snowstorm it was, I think—my father took me, wrapped snugly in his shepherd's plaid, to the schoolhouse. I may have been in school before that day, but my memory does not go farther back. Probably I was four years old; perhaps five.

The schoolhouse was a stone building with slated roof, Gothic windows, with diamond-shaped panes; ivy-covered walls; a bell on one of the gable ends, the ringing of which sometimes brought plaster down.

The schoolroom floor was tiled; on the tiles were mats. Heat in winter came from a grate at one end of the room; the fuel—peat—was brought by the scholars.

On one side of the room were long, comfortable seats with backs to them; on the other, stretching from end to end, was a black, narrow desk; in front of it, backless forms, or benches. On these we sat, when writing—not yet exalted into penmanship—was in progress, and often while studying other lessons. The other seats, arranged as three parts of a rectangle, the master's chair in the open side, were used for recitations, a word which was then far in the recesses of the future.

As to the environments of the building, they were a constant joy, to some of us at least. West of the house was a small green, bounded on two sides by dikes (stone fences); on the others, by a clump of trees, the schoolhouse, and a holly hedge. Beyond one dike was the village, or hamlet, road; outside the other, a murmuring burn, which in days of flood became a roaring torrent.

In front of the windows and the long desk was the school-

house garden; in the spring and summer a mass of beautiful flowers.

A stone's throw away was the sea, an arm of the Atlantic; beyond, a magnificent encirclement of mountains, beautiful at all times, especially so in autumn when the purple-bloomed heather was in all its glory. About twenty miles across the sea, was, and still is, distinctly visible from neighboring hills on clear days, the famous house in which Dr. Samuel Johnson met Flora Macdonald, the heroine of '45. Oh, for a glimpse of the doctor's burly form; or a single sound of that gruff voice!

Between the schoolhouse and the hills was a hamlet, mainly of thatched cottages, many of which are accurately pictured in "The cotter's Saturday night," by the master-singer of Scottish rural life.

To a stranger, temporarily within our gates, the environments might have seemed prosaic enough, but for us the solemn mists, the winter storms, the melancholy moaning of the Atlantic surge, the innumerable stories of fairies, brownies, ghosts, and mermaids, and the accumulated traditions of centuries filled our atmosphere and our lives with poetry. As to inspiring surroundings there was no lack, and the temptation to stay out of doors is as strong now as it was in the days "of auld lang syne," but the editor's imperative mandate forces me reluctantly to re-enter the schoolroom.

Brother Search and others, the apostles of individuality, are not setters forth of new doctrines, for in that Highland school individualism went at large, unchecked and uncurbed. In studying, every scholar did as was done when there was no king in Israel—that which was right in his own eyes. During all my school days I can remember nothing like what is now termed a recitation in arithmetic, and my progress in that study was limited only by my capacity and speed in solving problems —no, not that, but in doing sums.

After the scholar had gone several times thru the arithmetic, he was, if he stayed in school, and if, like Geordie Hoo in *Beside the bonnie brier bush,* he was a "lad o' pairts," promoted into algebra, geometry, Latin, and even Greek. For, in

those mountain schools, as in that of Drumtochty, any likely lad, who so desired, was fitted for the university. There was regularly a mental arithmetic exercise which might be termed a recitation, or more accurately, a drill. The class stood in line as in spelling; the master gave out with almost lightning-like rapidity: "8¾ lbs. at seven pence halfpenny; 2⅞ ounces at a shilling and twopence," etc.

Arithmetical contests in the fundamentals were common and popular. The master would give out a sum in addition thus: "First line, 437; second line, 584," then after four or five or more lines had been given, "Add!" The excitement was intense, especially when the master competed with the class for first place. These arithmetical races were a recreation and a most valuable drill.

Our Readers were called "Collections," thus: "First collection," "Second collection," and so on, and they were truly collections of extracts—prose and poetry—from the best literature then known. We were studying masters, but we were allowed to introduce ourselves, for, as Colonel Parker would say, the "Being" in charge of us at that time cared little for literature, and was mainly concerned in galloping us thru the Collection. And this is no wild figure of speech, for our reading in class was done by main force, and I can still clearly recall the loud monotone, and the headlong crashing thru inflections, accents, poetic pauses, and whatever else of a rhetorical nature might be in our path, to the close of the paragraph.

But there came to some of us much of permanent value from the daily contact with Wordsworth, Scott, Cowper, Johnson, Addison, and others. The grammar of my boyhood lives in my memory mainly as an awful nightmare. A few luminous, or I should say, illuminous points stand out in bold relief—rules, roots, and parsing. The schoolmaster, like Carlyle's, "knew syntax enough, and of the human soul thus much: that it had a faculty called Memory, and could be acted on thru the muscular integument by appliance of birch rods."

I memorized rules and exceptions innumerable—so they seem at this distance—but all are happily lost to me in the haze of the past; only this appears to linger, that "the verb

'to be' has the same case after it that it has before it." The conjugations and declensions stayed with me, likewise the attitude of prepositions to the objective case, and it was burned into my soul and body that verbs must keep on harmonious terms with their nominatives, however far apart they may be placed by the requirements of composition. Besides these, I may have unconsciously, and surely unintentionally, and in spite of the conditions, absorbed a few grammatical principles.

And the Latin roots; oh, those roots of bitterness! Columns of them were appended to the grammar, and so many of them must be memorized—no, that word had not yet been invented —learned by heart was the phrase, tho the heart had neither part nor lot in the business; and was indeed in continuous mutiny. So many roots each day! "Ye shall not minish aught of your bricks of your daily task," or, there will follow a keeping-in after school, or symphonies in Birch Minor.

The daily grind ran something like this: "*Caput,* the head, as capital; *Centum,* a hundred, as century," etc. Of the expression of thought by essay or composition, there was little or none. Upon the whole, the grammar recitation, for we did, after a fashion, say this lesson in class, was something I looked forward to with dread, and departed from with hilarity. Fortunately for me, later in life, I was instructed in grammar by that prince of philologists, Dr. F. J. Furnivall of London. Under his tuition, the study which had been to me in the school of the long ago a soul-depressing valley of dry bones, became attractive and even beautiful. The little paper-covered book of extracts from *The stones of Venice,* used in Dr. Furnivall's classes for parsing and analysis, I have yet, and it will stay with me unto the end. It is dear to me because of what it recalls and because it introduced me to John Ruskin.

Our text in geography was a small volume about seven by five inches. I had no love for the book, as it was written in the Dryasdust style, and was nearly wholly unrelieved by pictures or maps, but I liked the study, especially the map exercises. There was a fine set of maps in the schoolroom, and it was from these, and from my general reading, I learned geography.

Occasionally we were asked to draw maps in colors, or rather we were allowed to do it as a recreation. I can remember, too, that we had geographical contests. We stood in a row and the second scholar in line asked the first a question. For instance, "Where is Lake Tchad?" A failure to answer gave the first place to the second scholar in line. The third put the next question, and so on down the line.

History was taught on the Gradgrindian plan—facts, facts, facts! However, the loss to me was not great, for, beyond the schoolhouse walls, I found in my miscellaneous reading history in more fascinating forms.

There was a blackboard in each of the two schools I attended, but it was mainly used to hang maps on; seldom to illustrate any lesson. Besides the map-hanging, the only fact connected with a blackboard that remains with me is that the master, one day in teaching geometry, drew on the board figures from Euclid and that I wondered greatly at the performance. The blackboard is not yet appreciated in Scotland as it should be, but its use, especially in the larger cities, is becoming more general.

Singing was not taught by note, but a great deal of it was done between lessons; if not with the spirit and the understanding, certainly with vigor and enjoyment. Action-songs, almost exactly like those we now hear in the kindergarten, were common. Occasionally the scholars would march out at noon to the music of some lively tune. Of the songs, I remember "The rain is falling very fast"; "Children go"; "Buy a broom"; "Bonnie Doon"; "Get up and bar the door"; "Hark, 'tis the bell"; "Sound the loud timbrel o'er Egypt's dark sea."

The pupil-teaching idea had not in those days been embodied into a system, but much of it was done in an irregular manner. When I reached the Fifth and Sixth Collection stage of progress, I was often asked to teach classes of younger children. I liked the work, tho I did not then desire nor purpose to become a teacher. But I have often been thankful for my experience in the Highland school.

I was eleven or twelve years of age when I was put into

Ruddiman's *Rudiments of the Latin tongue.* How well I remember it, an ancient, storm-tossed book that had passed thru the hands of several other boys before it came to me! I took to Latin from the first; not only liked it, but I might almost say, loved it and far preferred its grammar to that of English; which leads me to inquire whether or not we are wise in these later days in pushing the study of Latin out of the common schools into the high schools and colleges. After the grammar came reading, the Delectus, *Cornelius Nepos,* and *Cæsar,* but at that point there came a long suspension in my studies, the bread-and-butter question becoming urgent on the outside.

As to the discipline or *un*discipline in my first school I could easily fill a large volume. Two rules the master knew, and he knew them well—the deductive system and birch. Other woods, willow, plane tree, etc., were used to vary the monotony, but the reminiscences in my system still remind me that the effects were much the same.

The milder punishments were keeping-in at noon and after school, sitting on the floor, standing on stools, learning rules, etc. The "etc." includes much.

Goldsmith, in his *Deserted village,* saw our master with poetic or prophetic eye, for we, too, often

> "learned to trace
> The day's disasters in his morning face,"

and the days were not rare when

> "the busy whisper, circling round,
> Conveyed the dismal tidings when he frowned."

We learned to scan not only his morning's face, but the color of his coat, and the busy whisper often circled round as he entered the schoolroom from his apartments: "The red coat is on to-day, boys; look out for squalls!" How distinctly I remember the fearful thrashing a boy got one day for failing to commit to memory the required number of questions in the Shorter Catechism. The punishment was administered on the principles of geometrical progression. The penalty for the first failure was four strokes of the switch; the second, eight; the third sixteen; and on this particular morning, the number

had reached thirty-two! That boy afterward took to the sea, and in the course of time became a captain. What thoughts he must have had, as he paced his deck, under the silent stars, concerning the progressive method of switching religion into the human system! But it should be said here that the switches were lithe affairs, not likely to permanently injure the body, and that the boys were remarkably tough. But tho the punishments were often unnecessarily severe, and out of all proportion to the offense, there were none of the barbarities I have read about, such as holding a weight out at arms' length; bending over and keeping the fingers on the floor, etc.

The last four masters I had were university students who were fitting themselves for the professions. Their management of the school was humane, and government by birch was reduced to the minimum. The teaching, too, tho much was still crude enough, was perceptibly improving.

There were but few libraries in any house in the parish, but a boy who loved reading generally found books. Connected with my first school was a small library, and it was there I one day, rummaging in the shelves, discovered Shakspere. I opened a book, and beheld *A midsummer night's dream.* To my childish mind—probably I was eight—here was a book that differed from other books and the impression remains with me unto this day as that of a beautiful picture. It was years later, in my young manhood, that I discovered Shakspere a second time, and then came to me my second and my clearer sight.

Probably it was in my tenth year that there drifted into my hands, and singularly from another boy of about the same age, *Paradise lost.* I read all thru its twelve books, until the hopeless pair

> "with wandering steps and slow
> Thru Eden took their solitary way."

At the close of the reading my emotions were much the same as I imagine those of one ignorant of music would be after listening to the sublime strains of a cathedral organ. Of blank verse, classical allusions, feet and measures I knew as little as an untutored savage, but this I did and do now know, that from

Paradise lost there floated into my soul melodies and harmonies which put new beauties and joys into my life.

In the second school I attended, about a mile distant from the first, there was a fine library, but it belonged to some parish association, and was in a locked case. I often looked longingly toward it, and at last made bold to ask the schoolmaster, a splendid young fellow, whose sympathies were always with the hopes and aspirations of boyhood, if he would use his influence to have books lent to me. So he spoke to the secretary or custodian of the library, a gruff old doctor, the antipodes of "Weelum McClure," and a "Being" who regarded the average boy as an animal to be suppressed. "No, sir; no books for boys; the library is for the benefit of the members." But the master with a semi-twinkle, half-wink said, "Never mind, Johnnie, we'll find a way." And he did. The door was opened, and ah, the joy! as the Manxmen put it, before me were Scott's and Maria Edgeworth's novels; travels, essays, histories, biographies, in brief, the choicest of English literature. I was allowed to take a book home, many of them in succession. The library doors regularly opened and shut, and the old doctor—still living at this writing—remained, and yet remains, ignorant of the fact that a boy, hungering and thirsting for knowledge, broke into the treasury and helped himself.

But my friend—blessings on his memory!—how clearly I can remember his form, six feet or more in height; ruddy cheeks; eyes beaming kindly thru his glasses—was taken away in the flower and vigor of his manhood. In one heart, at least, the picture of him can never fade.

In my lowly home there were not many books, but they were well thumbed. The Bible, of course, had the place of honor. It was read at family worship morning and evening, and I was required to read a few verses or a chapter after getting up, and before going to bed. This was exceedingly irksome to me, and I used divers forms of strategy to evade the reading, but it was insisted on; habit became fixed, and it is now as much a part of my life as the eating of my meals. Next to the Bible was the *Pilgrim's progress*, a time-worn book lacking covers, and containing a variety of fearfully and wonderfully made

woodcuts, which would have filled the old masters with emotion. How many times did I travel with Christian from the City of Destruction; sink with him in the Slough of Despond; climb with him up the Hill Difficulty; diverge with him down the bypath into the clutches of Giant Despair; gaze with him in ecstasy from the summits of the Delectable Mountains, and share with him the joy of traveling in the Enchanted Land? A hundred times or more I must have made that ever-memorable journey. Oh, rare John Bunyan! His *Holy war,* too, I read many times, and I found attractions even in *Grace abounding.*

These books were read on Sundays when secular reading was not permitted. However narrow those Highland mountaineers may have been in their church worship, in their religious reading they were exceeding broad and recognized all creeds and denominations. Among the Sunday books, for instance, were the works of the Wesleys, Whitefield, Newton, Cowper, Flavel, Baxter, Richmond, Doddridge, Krummacher, D'Aubigné—yes, and even Thomas à Kempis.

Who in these days ever reads Legh Richmond's *The dairyman's daughter,* one of the narratives in "Annals of the poor"? The lowly title may excite a contemptuous smile. Well, it was one of the books which in my boyhood had an unfailing charm for me. The story of a servant-girl's religious experience may, on the surface, seem an unlikely thing to attract a boy, but here and there thruout the book are descriptions of the scenery of the Isle of Wight that, tho in prose, rival even Tennyson's picture of Lake Killarney's environments in his "Bugle song."

The memory of my first night with *Robinson Crusoe* remains undimmed by the lapse of years. It was a small, backless volume; the print nonpareil, and the light that of a peat fire. From beginning to end I was in the third heaven of ecstasy. How profoundly thankful I am that *Crusoe* as an "eethical core of concentration" had not then been discovered by the German philosophers!

How my old schoolmaster, with his deductive system and birch, would have "glower'd" had some educational reformer

recommended *Crusoe* to him as a story to develop "the industrial instincts of the child," or to furnish *Gesinnungs-stoff* (material for the sentiments). But, thank goodness! there was no philosophy of concentration to disturb me, as by the peat-light, I joyously roved around with Crusoe and his man Friday. I just read and read, taking no thought for the morrow nor the day after. Many American books found their way into those Highland glens and hamlets. I can well remember *Uncle Tom's cabin, Dred, The lamplighter,* and Edgar Allen Poe's *Prose tales.* Bless me, what a variety of stuff, good and indifferent I must have read! As I write, titles thought to be forgotten come up before me, and each suggests others. *The autobiography of an English opium-eater;* Coombe's *Constitution of man; The vicar of Wakefield;* Smollett's and Fielding's novels—these are a few of many.

The space-limit of this article, if such a jumble of reminiscences can be so called, has been reached. My remembrances, as they came uppermost in my memory, have been given without logical form or comeliness, and possibly non-essentials have been unduly magnified. It may seem that I have dwelt too much on my reading, but from that source there came to me at least the half, and the better half, of my education.

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V

EDUCATION AND EVOLUTION

It is obviously true, as Compayré has said, that "decisive changes in human opinion—political, religious, or scientific—involve corresponding changes in the purpose and methods of education." It was, therefore, to be expected that the most decisive change in modern thought, namely, the change effected by the biological theory of development presented by Darwin, in 1859, would involve revolutionary changes in the field of education. Such expectation, however, if it has been cherished, can hardly be said to have been fulfilled. Resultant effects of the theory of evolution upon education are, to be sure, numerous and important, but they are almost inconsiderable in comparison with the changes wrought by the same theory in the biological sciences. Educational doctrines have been almost as impervious to the stream of evolutionary thought as the incrusted creeds of theology.

If we inquire after the cause of this phenomenon, we have not far to seek. In education, as in theology, it is the conservative influence of authority. Modern educational doctrines are to a considerable extent an inheritance from the pre-evolutionary epoch of German, French, and English philosophy. Our educational thinkers have been chiefly employed in the interpretation, the elaboration, and the application of the doctrines of Bacon, Locke, Comenius, Rousseau, Basedow, Pestalozzi, Froebel, and Herbart, all of whom lived and died before Darwin's immortal work on the origin of species was published. Herbart, for instance, the latest of those just named, and whose system of education has awakened so much interest and is now attracting so much attention, died in 1841, eighteen years before the theory of natural selection was clearly

propounded.[1] The consevative influence of these early educationists upon educational theory has been similar to that of the Christian Fathers upon theology. It has tended to turn back the tide of evolutionary thought from the field of education.

It would be a mistake to interpret what has just been said as indicating lack of reverence for the great men whose educational theories we have inherited, or failure to recognize the inestimable value of their teachings. It would be presumption, as well as ingratitude, to intimate that the educational world attaches undue importance to the doctrines of such educators as Herbart, Froebel, or Pestalozzi. No such thought is in mind. What I do assert is that allowance should be made for the fact that the thought of these men, and the other founders of modern educational philosophy, was uninfluenced by the theory of organic evolution, and should be corrected in the light of it. Reverence for the educational Fathers does not demand that we overlook their limitations. Their doctrines, like those of their contemporaries, must be informed with the newer thought. Evolutionary ideas must be given free course, in education as in biology. The change they are destined to produce in the purpose and methods of education has only been begun. Educational philosophy will yet be rewritten from the standpoint of evolution.

There are many teachers, and even some writers on the subject of education, who do not accept the evolutionary hypothesis. It is only an hypothesis, they say, and, as for themselves, they mean to await demonstrative evidence before accepting it. This is a strange position to assume. The hypothesis-rejecting attitude is supposed by some to manifest a judicial habit of mind, but it more frequently betrays indifference to the questions at issue. No one can think long on the subject of how the world, or any part of it, became what it is, without accepting some kind of hypothesis. Evolution has

[1] Horace Mann died in 1859, the same year in which Darwin's book appeared. Rosenkranz's *Philosophy of education*, altho it originally appeared in 1848, is still a standard text-book in our educational libraries. Other facts illustrating the idea of the text will suggest themselves to the reader.

thus far proven to be the most rational explanation. No failure has yet been recorded against it. No other conception or theory of the universe has any standing in the court of science. It is the only theory that has any scientific evidence in its favor. Rejection of it as a working hypothesis is inconsistent with an eager desire for the truth.

Evolution, however, is something more than a working hypothesis. Long ago Professor Huxley declared that "the evotion of many existing forms of animal life from their predecessors is no longer an hypothesis, but an historical fact." [2] Other competent students of nature have asserted positively that the doctrine of the descent of multicellular animals from unicellular, of amphibious animals from fishes, of birds from reptiles, of the placental mammalia from the marsupials, and of man from some lower apelike form rests upon an incontrovertible basis of fact. "The general theory of descent," says Haeckel, "claims full and permanent value, because it is inductively based on the whole range of common biological phenomena and on their internal causal connection." [3]

The evidence supporting the conclusion just expressed cannot even be touched upon here. Readers who may happen to be unfamiliar with this evidence can only be referred to the books which present it in detail.[4] To those who are still awaiting the discovery of "the missing link," or the actual observation of the transmutation of one existing species into another, before admitting their belief in the theory, I commend Professor Huxley's chapter on "The demonstrative evidence of evolution." [5] "An inductive hypothesis," said Professor Huxley, "is said to be demonstrated when the facts are shown to be in entire accordance with it. If that is not scientific proof, there are no merely inductive conclusions which can be said to be proved. And the doctrine of evolution, at the

[2] *Encyclopædia Britannica*, article on "Evolution."

[3] *Freedom in science and teaching*, p. 13.

[4] Of the numerous books on the subject of evolution the following may be recommended to those who have not read upon the subject: Darwin's *Origin of species*, and his *Descent of man*; Romanes's *Darwin and after Darwin*, vol. i, and Drummond's *Ascent of man*.

[5] See *Lectures on evolution*, No. 3.

present time, rests upon exactly as secure a foundation as the Copernican theory of the motions of the heavenly bodies did at the time of its promulgation. Its logical basis is precisely of the same character—the coincidence of the observed facts with theoretical requirements." [6] So far as the present discussion of education and evolution is concerned, the theory of evolution, with all its legitimate implications, is accepted by the writer as the most rational world hypothesis thus far conceived. The evidence in support of it is regarded as overwhelming and convincing.

Regarding evolution, then, as the correct explanation of the universe, our present purpose is to show the place of education in the general evolutionary process, and its relation to organic evolution as a whole. Let us consider first the place of education in the cosmic process.

"The general doctrine of development," says Professor Haeckel, "the pro-genesis theory or evolution-hypothesis (in the widest sense, as a comprehensive philosophic view of the universe) assumes that a vast, uniform, uninterrupted, and eternal process of development obtains thruout all nature; and that all natural phenomena without exception, from the motion of the heavenly bodies and the fall of the rolling stone to the growth of plants and the consciousness of men, obey one and the same law of causation."

This general theory of the world process is, of course, all-inclusive. It applies to inorganic, organic, and superorganic phenomena. There is no break in it. Some who accept it in a general way think it does not apply to the origin of life and mind, or to the development of the spiritual faculties. Such a view, however, is inconsistent with a belief in the theory of evolution. It may be that no experimental evidence in regard to the origination of life, for instance, will ever be provided. And yet, by an act of scientific faith, we conclude that the organic world has evolved naturally from the inorganic. "Biologists in general," says Mr. Spencer, "agree that, in the present state of the world, no such thing happens as the rise of a living creature out of non-living matter. They do not deny,

[6] Op. cit., p. 35.

however, that at a recent period in the past, when the temperature of the earth's crust was much higher than at present, and other physical conditions were unlike those now, inorganic matter, thru successive complications, gave origin to organic matter. So many substances once supposed to belong exclusively to living bodies have now been formed artificially, that men of science scarcely question the conclusion that there are conditions under which, by yet another step of composition, quaternary compounds of lower types pass into those of highest types. That there once took place gradual divergence of the organic from the inorganic is, indeed, a necessary implication of the hypothesis of evolution, taken as a whole." Similar expressions might be quoted from Professor Huxley and other competent authorities.

The evolutionary process, then, is one and continuous. Nature and art, organic, psychic, and social evolution, and consequently education, are all embraced in its universal sweep.

Education, however, deals only with sentient beings. It, therefore, belongs within that part of the cosmic process known primarily as organic evolution. We may, therefore, dismiss the general conception of the world process, and confine our attention to the evolution of organic beings.

Organic evolution, as almost everyone must know, is the description of that series of morphological and psychological changes which organic beings have undergone since the appearance on this planet of living matter. Psychic and social evolution are its concomitants. Man, no less than the lower organisms of the animal and vegetable kingdoms, must be considered as its product. The theory applicable to this department of evolution may be briefly presented by introducing here a passage from Romanes' *Scientific evidence of organic evolution.*

> It is a matter of observable fact [says Professor Romanes] that all plants and animals are perpetually engaged in what Mr. Darwin calls a "struggle for existence." That is to say, in every generation of every species a great many more individuals are born than can possibly survive; so that there is in consequence a perpetual battle for life going on among all the constituent individuals of any given generation. Now, in this struggle for existence, which individuals will be victorious and live? Assuredly those which are

best fitted to live; the weakest and the least fitted to live will succumb and die, while the strongest and the best fitted to live will be triumphant and survive. Now it is this "survival of the fittest" that Mr. Darwin calls "natural selection." Nature, so to speak, selects the best individuals out of each generation to live. And not only so, but as these favored individuals transmit their favorable qualities to their offspring, according to the fixed laws of heredity, it follows that the individuals composing each successive generation have a general tendency to be better suited to their surroundings than were their forefathers. And this follows, not merely because in every generation it is only the flower of the race that is allowed to breed, but also because, if in any generation some new and beneficial qualities happen to appear as slight variations from the ancestral type, these will be seized upon by natural selection and added, by transmission in subsequent generations, to the previously existing type. Thus the best idea of the whole process will be gained by comparing it with the closely analogous process whereby gardeners and cattle-breeders create their wonderful productions; for just as these men, by always selecting their best individuals to breed from, slowly, but continuously, improve their stock, so Nature, by a similar process of selection, slowly, but continuously, makes the various species of plants and animals better and better suited to the external conditions of their life.

Now, if this process of continuously adapting organisms to their environment takes place in Nature at all, there is no reason why we should set any limits on the extent to which it is able to go, up to the point at which a complete and perfect adaptation is achieved. Therefore we might suppose that all species would attain to this condition of perfect adjustment to their environment, and there remain fixed. And so undoubtedly they would, if the environment were itself unchanging. But forasmuch as the environment —or the sum total of the external conditions of life—of almost every organic type alters more or less from century to century (whether from astronomical, geological, and geographical changes, or from the immigrations and emigrations of other species living on contiguous geographical areas), it follows that the process of natural selection need never reach a terminal phase. And forasmuch as natural selection may thus continue *ad infinitum*, slowly to alter a specific type in adaptation to a gradually changing environment, if in any case the alteration thus effected is sufficient in amount to lead naturalists to denote the specific type by some different name, it follows that natural selection has transmuted one specific type into another. And so the process is supposed to go on over all the countless species of plants and animals simultaneously—the world of organic types being thus regarded as in a state of perpetual, tho gradual, flux.

Such is the theory of natural selection. It is the story of how nature has schooled her children to a conformity with the requirements of their environment. It is not the whole account, of course, of organic and social evolution, but it has played a larger part in it than is usually recognized. In social

evolution it is assisted by various factors within the group, but it continues to operate not only upon organic structures, but upon ideas, customs, institutions, and upon the groups themselves. As in the general process, so here in this part of it, there is no break. From monads to man in his highest perfection there is continuous development. In this fact is the most rational sanction of our hope for man's future. "Thoughtful men," says Professor Huxley, "once escaped from the blinding influences of traditional prejudice, will find in the lowly stock whence man has sprung the best evidence of the splendor of his capacities, and will discern in his long progress thru the past a reasonable ground of faith in his attainment of a nobler future." [7]

Since man, then, however highly educated he may be, is in the strictest sense a lineal descendant of the protoplasmic organisms which were the first inhabitants of this planet, a product of all the forces which have impinged upon him from the beginning, education in the ordinary sense is, as applied to the individual, merely a factor in organic evolution.

It is worth while to notice in this connection that the period covered by formal or school education, as far as the entire development of the individual is concerned, is a mere moment of time. Infinite is the word we apply to the inorganic process. A hundred million years perhaps would no more than span the period between man as we know him and the primordial forms of life. A score of years at most suffices to cover the school period in the life of a single individual. Education, then, as a factor in individual development is applied for only a few years near the end of the process of the development of the individual thru a series of ancestral forms. School experience is, so to speak, the finishing shop of nature. How slight, then, after all is the opportunity of the teacher. Nature has almost completed her product before it is placed in his hands.

The brevity of the school period in comparison with the experience of the individual, actual and inherited, is not, however, the most striking or the most significant fact revealed by the

[7] *Man's place in nature* (Humboldt Library Series, No. 41), p. 234.

consideration of education in the light of evolution. There is another suggestion of somewhat more practical significance.

In the brief account of the theory of natural selection, quoted from Romanes, the use of the words transmutation and adaptation must have been noticed. Organic evolution, it was shown, is the process of adapting the organism to its environment. Now, after all that has been said about the difficulty of defining education, we shall not be far wrong in asserting that it, too, is primarily a process of adaptation. It is the adaptation of the individual to a physical and social environment, actual or ideal. The whole process of organic evolution, therefore, may be looked upon as essentially an educational process. Education may not only be regarded as the homologue in the social world of evolution in the organic world, but the meaning of the term education may be extended to include the whole developmental process of the individual from the beginning of life.

This may seem to be an unwarranted extension of the idea of education. It is a common observation, however, that education does not begin or end with life in the school. We speak of the education of the home, and the education of experience with men and things. May we not also extend the thought, so as to include prenatal and ancestral experience back to the point which marked the real beginning of the individual's life? This is the view we shall now take for the purpose of showing the relation between school experience, or education in the narrow sense, and organic evolution, or education in its widest signification. Regarding the education of the individual, then, as having been begun with the experience of his primordial and protoplasmic ancestor and continued on down thru the life of the race, we may roughly divide the process into the education which nature, in the narrow sense, has carried on, and the education which has been consciously provided by intelligent beings. The first we may call natural or genetic education, and the second artificial or telic. The former is the spontaneous education which the individual has received as the inevitable result of his experience; the latter, the experience which has been consciously designed to produce educational

results. One is the work of nature; the other is the conscious work of man.

Natural or genetic education, then, is the modifying and adaptive process which organic beings have undergone thru the operation of external forces, physical and social. In the case of an individual human being its results include all the morphological and psychological changes which have been unconsciously produced in himself, and in the long series of organic beings of which he is the last term. Its results are summed up in him in the special characteristics of form and function due to his heredity, and in the additional increments of his development which are to be set down as the unintended educational results of his life experience. This natural educational process is specifically recognized by M. Letourneau, who, in a passage in his *L'évolution de l'éducation*, declares that every human being, as well as every animal, is the result of influences undergone organically and mentally by its ancestors. These influences, he says, have constituted for the species *a spontaneous education*, the traces of which are profoundly imprinted, organically and mentally. These influences spring from diffierent causes: from the action of climate, from the physical environment to which their progenitors have had to accommodate themselves. In human society they result in large measure from the action of the social environment, especially from the kind of life which from the remotest times our ancestors have been subjected to or have themselves adopted.

The natural education of man may be divided at the point where he enters upon life in a social group, that is, at he origin of society. Prior to that time nature was wholly engaged in educating him for or adapting him to life in his physical environment. This we may call natural physical education. The process continues, of course, thru his life in the social group, but at the origin of society there began another stage of the educational process, whereby he has been progressively adapted to life in a social environment. This phase of the educational process I shall call natural social education. Compayré expressed the idea when he said "there is not only an education properly so called, that which is given in schools and

which proceeds from the direct action of teachers, but there is a natural education which we receive without our knowledge or will, thru the influence of the social environment in which we live." [8] This form of education results from the interaction of personalities, from the influence of institutions, and from the action of the group upon its individual members. The enormous influence of these factors in molding the form and character of the individual will not be questioned. Life is in reality a school, in which experience is the teacher. The unconscious influence of persons and institutions ceaselessly operates to mold human character. The social structure is itself a significant educational factor. "As soon as a social combination acquires some permanence," says Herbert Spencer, "there begin actions and reactions between the society as a whole and each member of it, such that either affects the nature of the other. The control exercised by the aggregate upon the units is one tending ever to mold their activities and sentiments and ideas into congruity with social requirements." [9] So much for the natural physical and the natural social education of the individual.

We have shown that natural or genetic education, the first great division of the educational process, may be subdivided into physical and social education; that physical education results in adaptive morphological and psychological changes, and that social education continues the process by molding the individual into conformity with social environment. Let us now glance at the end towards which the evolution of individual forms seems to be directed, and the manner in which that end is approximately reached. In other words, tho, scientifically speaking, the terms employed are unwarranted in this connection, let us consider the aim, means, and methods of natural education.

I say that the use of such terms as aim and method in describing the process of nature is unwarranted, for, so far as the vision of science can penetrate, nature has neither aim nor method. "Method," says De Greef, "is the loftiest process of

[8] *History of education*, preface.
[9] *Principles of sociology*, vol. i, p. 12.

individual intelligence." [10] Unless we attribute intelligence to nature, and we should step out of the boundaries of science in doing so, we are prevented from speaking of the aim and methods of nature except in a figurative sense. Recognizing the accommodation of language in the use of teleological terms to describe the process of nature, we may speak, however, as if Nature in educating her children sets up an aim, and employs means and contrives methods to realize her aim.

The aim of nature, then, in the development of organic beings, that is to say, the aim of natural education, whether physical or social, is that condition of the organism at which the evolutionary process comes to a standstill. This condition is usually expressed as adaptation to the environment. Whether the process leads to the improvement of the type or to the opposite, the aim of natural education is realized when adaptation is complete. In the case of certain organisms this adaptation has practically been reached. Almost if not quite perfect equilibrium between the forces of the organism and the forces of the environment has been established. Some of the lower forms of animal life seem to have undergone little or no change since a very early geological epoch. In this respect man himself has almost reached a stationary state. We have neither historical nor paleontological evidence that his form has undergone any marked changes since the beginning of society. Except in his improved brain structure he has preserved the type prevalent in the eocene epoch. The fossil human remains of Spy, Neanderthal, Engis, Furfooz, and Java indicate some differences in form from the man of to-day, but they are not sufficient, according to some authorities, to warrant the classification of any of these types in a new genus. Man's physical education is, therefore, all but complete. As far as his general structure is concerned, the work of nature seems practically to be accomplished. His psychological development, however, while it probably involves some changes in organic structure, seems destined to go on forever. The aim of nature will never be realized for the reason that the environment of an intellectual creature like man is necessarily

[10] *Introduction à la sociologie*, preface.

unstable and changing. The same may not be said of animals of a lower order living in a practically stable environment. Whatever the conditions, however, or whatever the organic being under consideration, the aim of nature is always the same, namely, adaptation to environment.

Let us now consider the means employed by nature to realize her scholastic aim.

The word means, as applied to education, denotes the material and psychical instruments employed in the production of educational results. Unless we confine ourselves in this discussion, however, to the material objects employed, we shall confuse the means of natural education with its methods. The means of natural education, then, are the physical and social environment. This, to be sure, in the proper sense of the word, is no means at all. Nevertheless we may say that it is by the impinging forces of the environment acting upon the organism that nature produces all her results. She has no school but the world, no teacher but experience. The absurdity of "following nature," in any literal sense, in the work of the school is here most conspicuously presented.

Turning now to notice the method employed in natural education, we find that, so far as physical education, natural and social, is concerned, it may be roughly described by the word selection. Natural and sexual selection are the chief methods by which nature has developed all her various and wonderful organic forms. A casual examination of these so-called methods, however, reveals the accommodation of language in the use of the term as applied to the process of nature. It has been described as the method of trial and error. It consists in the practically unlimited production of living forms and the survival of the few which do not succumb to the hostile environment. The seeds of life are scattered profusely and indiscriminately. As Professor Ward has said, "not only must we conceive the effort as proceeding from the center of a circle, but we must absolutely conceive it as proceeding from the center of a sphere." [11] And again he says, "while every crea-

[11] *Outlines of sociology*, p. 254. See also *Psychic factors of civilization*, chapter xxxiii.

tion of organic nature has within it the possibility of success, that success is only secured by the multiplication of chances." The natural process therefore takes place without a method in the proper sense of the term. And here again is illustrated the absurdity of imitating in education the processes of nature. Calling selection a method, however, we can see that it involves three factors, namely, variation, heredity, and the struggle for existence. These might be regarded as means, for by the variations which, to indicate our ignorance of the causes which produce them, we call spontaneous, an opportunity for selection is afforded. By heredity nature preserves the stored-up results of experience, and by the struggle for existence she eliminates the individuals and types which do not conform to the necessities of the environment. In natural social education suggestion, imitation, and repetition play an important part. The method of development, however, may still be described as selection.

Now, in the practical work of the school, it is sometimes forgotten that the natural educational process is going on just the same as in extra-scholastic or in subhuman experience. Whether the teacher is conscious of it or not, natural influences are ever busy in supplementing or counteracting her efforts. The education of nature may be slow and imperceptible, but it is absolutely inevitable and continuous. The methods of the teacher are applied during only a part of the day, but the methods of nature are in perennial operation. Our schools and colleges have their commencement exercises, indicating that in the case of certain individuals their work is complete, but there are no graduates from the school of nature. Sometimes the great Teacher of us all works with considerable rapidity. The process of imitative selection, for instance, is swift and, when undirected by a skillful teacher, may undo the results of artificial methods. Everyone will recall the memory of some teacher whose valuable precepts were rendered ineffective by the swift influence of his bad example. The study of the aim, means, and methods of nature is important, not that we may follow nature, but that we may utilize her forces in improving upon her work.

Turning now to the second great division of the educational process, the artificial or telic, we may define it roughly as that part of the educational process which is consciously directed. The fundamental distinction between this form of education and natural education is the employment of a teleological element. In artificial education man has become conscious of the natural process and seeks to control it. Artificial education is natural education directed towards a preconceived end. This implies not only an educational aim consciously set up, but the employment of means and the devising of methods to realize the aim. Here, however, as in all art, the process is one of controlling the forces of nature. These are exactly the same as those unconsciously operating in natural education. Artificial education is not an entirely new and distinct process; it is the old one under more or less conscious direction.

The form of education now under consideration may result either from the conscious effort of one person to modify the development of another, or the conscious effort of an individual to modify his own development. In the former case the teleology is exerted by someone other than the being educated. It is objective. To this kind of education I have applied the term altrotelic, the components of which plainly enough indicate its meaning. In the latter case, the teleology is a function of the being undergoing the educative process. It is subjective. This form of education may be fitly described by the word autotelic. Artificial education, then, may be subdivided into objective and subjective or, as I prefer, altrotelic and autotelic.

The continuity of the educational process is illustrated by the gradual shading off of natural education into artificial, or *vice versa*. No hard-and-fast line can be drawn between them. The same thing is true as regards the natural and artificial evolution of society. In attempting to establish a distinction between genetic and telic social progress Professor Ward says, "On the subhuman plane the organic advances that nature accomplishes all take place according to the genetic principle. They constitute what is commonly understood as development or organic evolution. When we take in human evolution it be-

comes evident that it includes something more than is involved in the evolution of irrational beings. The moment we rise to the social sphere we encounter the telic aspect of the subject. It is still development or evolution, but a new principle, radically different from the genetic, has now been introduced and in all the higher forms of social progress it assumes the leading rôle." [12] This new factor, to which Professor Ward refers, is the intellectual faculty, but, as it made its appearance in the evolutionary process by a series of imperceptible changes, so it introduced itself into the educational process in the same gradual manner. One or two examples may serve to illustrate this idea.

On the border line of artificial education, and serving as a sort of link between the natural and the artificial process, is the instinctive education which appears in the subhuman world. As has been said before, the animal, of whatever species, is born like man with a latent inherited education, the effects of which are manifested in the course of its individual development. Certain birds and beasts, however, add to this inherited education an education conducted by the parent in much the same way as artificial education is practiced in human society. Certain birds, for instance, may be observed teaching their young to fly or to swim. The bear teaches her cubs to walk, to climb, and to eat. Similar facts might be adduced to illustrate education in the animal world. This education, however, is only analagous to, and not identical with, the artificial education of the home and the school. It is conscious, but not purposive. Its results are not foreseen and intended. The practice of it is due to natural selection, aided possibly by incipient reason. It is owing to its resemblance to telic action, and to the possibility of its being such at bottom, that we may be warranted in classifying it under artificial education.

Just over the line, but plainly within the limits of the telic process, is the education by man of the domestic animals. Here the facts of nature, variation, and heredity, are duly taken account of, and the selective power which nature formerly exercised is now in the hands of man. The primary

[12] *Outlines of sociology*, p. 179.

method is artificial selection. The principle, however, is not different from that of natural selection. The factors are the same, viz., variation, heredity, and environment, but man, a conscious selective agent, has become a part of the environment.

Now, it may seem far-fetched and futile, if not absurd, to institute a comparison between the education of the school and the work of the breeder, trainer, or fancier. And yet, in some respects, they are identical. They are dealing with the same forces, their material is sentient beings, of different degrees of possible development, to be sure, but animals just the same. Nothing is gained by forgetting that man, however noble in reason, infinite in faculty, or express and admirable in form or moving, has, after all, a biological origin. In the work of the school, until a certain stage of the development of the pupil is reached, there is the same unconsciousness on the part of the being instructed, so far as the meaning of the process is concerned, as there is in the education known as artificial selection and training. The chief difference between the two processes is the number and character of the limitations imposed upon the teacher. The breeder or fancier is not restrained by sentiments of humanity or by legal enactment from rejecting or eliminating the types which he does not approve. For obvious reasons the teacher cannot proceed to this extremity, no matter how earnestly he may occasionally desire to do so. The teacher is handicapped by the necessity of developing each individual as far as possible in the direction of the ideal type. He cannot control heredity. He is compelled, much more than the breeder, fancier, or trainer, to subject himself to the natural process. The selective function assumed in artificial selection is, so far as the teacher is concerned, still in the hands of nature and society. Artificial selection and the training of the lower animals, however, is only a stage in the educational process. It lies clearly within the altrotelic division.

Proceeding upward thru subhuman education and artificial selection and training, we arrive at the highest form of altrotelic education, namely, the work of the school. There is no break,

we repeat, between school education and education out of the school. Even if, as Professor Huxley maintained in his celebrated Romanes lecture, the ethical process runs counter to the remainder of the cosmic process, there is no gap between them. The school itself, altho a means for improving upon nature, is at the same time a product of the evolutionary process. As the poet has said,

> "Nature is made better by no mean,
> But nature makes that mean: over that art
> Which you say adds to nature, is an art
> That nature makes."

Artificial education is, as the name implies, an art—an art which is most conspicuous in the school, but, as a matter of fact, the school is not an essential element in education. It is merely an incident in social progress. It is a means which society has constructed for economizing social energy. Mark Hopkins on one end of a log and Garfield on the other represent formal education as truly as any university or school, but society has not a sufficient number of Mark Hopkinses to warrant it in delegating them to individual instruction. Hence the saving appliances known as the school, the college, and the university.

In the school, education begins as an altrotelic process. The teacher conceives the aim, and strives with more or less intelligence of plan to realize it. He employs the available means which he regards as most effective, and devises or adopts methods which he thinks are the most intelligent, to achieve the end he has in view, namely, the approximation of an ideal individual type. Method in education, as in every department of human effort, implies an endeavor to economize. All improvement in teaching, the aim and means being constant, may be roughly represented as an increase in economy. Now when, in the education of an individual, is the highest degree of economy reached? Is it not when the pupil himself becomes conscious of the educational aim and, taking his education into his own hands, strives with consciously adapted effort to realize his aim? Every teacher must have observed how such a pupil, awakening to a consciousness of the meaning and value

of the educative process in his own case, forges ahead of his companions. The reason for his accelerated development is obvious. His activities are now self-ordered for the attainment of a definite end. He sees the goal and strives for it. In the interplay of his activities there is less friction, less counteraction of forces, less waste of time and energy. He has assumed the task of the teacher, who now tends to become useless until finally his energy, so far as that pupil is concerned, may be released for application elsewhere. Subjective or autotelic education is, then, the loftiest stage of the educational process. It represents the possibility of the nearest approach to ideal economy. From the beginning of natural education there is a gradual movement towards the self-conscious stage. Every step in that direction is accompanied by an improvement in the matter of eliminating waste. This thought will carry a wider significance when we come to consider education as a factor in social transformation.

To sum up, the general educational process may be divided into natural education and artificial education. Natural education falls into the divisions physical and social. Artificial education is merely a continuation, an extension, an acceleration of the natural process. Its distinguishing element is the telic or intellectual factor applied to the achievement of educational ends. It is purposive. It falls into altrotelic education, or that which is directed by others than the being educated, and autotelic, or that which is self-directed. These divisions, with their respective aim, means, and methods, always remembering that these words are used figuratively with respect to natural education, may be shown by the analysis on page 78.

If the foregoing description and analysis of the process of individual development are warranted by the facts, and artificial education is the continuation, extension, direction and acceleration of a process already begun, certain implications in regard to educational theory may be easily discerned.

In the first place, the conscious attempt to educate an individual is an interference with the process of nature. It is an attempt to direct or to control forces resident in the individual and his environment. It is, therefore, a negation of *laissez-*

EDUCATION OF THE INDIVIDUAL	AIM	MEANS	METHOD	ILLUSTRATION
Natural or Genetic.....	Adaptation	Organism and environment	Selection	
Physical.....	Adaptation to physical environment	Organism and physical environment	Natural selection (involving variation, heredity, and struggle for existence)	Evolution of animal forms
Social.....	Adaptation to social environment	Organism and social environment	Natural and social selection (involving suggestion, imitation, repetition, and choice)	The education of social experience
Artificial or Telic.....	Adaptation (ideal)	Organism and artificial environment	Artificial selection and modification of the environment	
Altrotelic.....	Production of ideal individual type	As above (school, books, apparatus, etc.)	Telic devices for economizing time and energy	Animal education. Breeding and training "Schooling"
Autotelic.....	Self-realization of ideal individual type	As above	As above with conscious inhibition and choice	Self-conscious and self-determined education

faire, so far as individual development is concerned. Whatever the cry, "back to nature," may mean as applied to education, it should not be interpreted as a demand to approximate the natural process in the work of the school. Everything that is done in artificial education is a "meddling" with natural processes. Against such action in itself no valid objection can be raised. It is only with reference to unwise efforts to control or direct the forces of individual education that such procedure may be properly condemned. The bungling teacher, like the bungling legislator, may do more harm than good, but intelligence may economize in the field of education as in the field of politics. The perfection of education is

in bringing under the control of intelligence every factor engaged in the process, and the direction of each toward the common end of producing the highest conceivable individual and social type.

In the second place, and implied by what has just been said, the teacher should have at least a general acquaintance with the evolutionary process in which he is a factor. The unvarying laws of individual and social development lie at the basis of his work. Without a knowledge of these laws, he is like a would-be inventor who does not understand the material with which he deals or the forces he tries to utilize. He undertakes the impossible, aims at an unattainable goal, grows enthusiastic over irrational methods, and widely miscalculates educational values. In short, he is an empiricist and illustrates the extravagances and prodigality of empiricism wherever it is practiced. Every teacher, then, should have a general course on evolution, and the school in which teachers are trained for their work should provide and prescribe such a course. "Grant," says Herbert Spencer, "that the phenomena of intelligence conform to laws; grant that the evolution of intelligence in a child also conforms to laws; and it follows inevitably that education cannot be rightly guided without a knowledge of those laws. To suppose you can regulate the process of forming and accumulating ideas without understanding the process is absurd." [13] We have shown, however, that education is not only the process of "forming and accumulating ideas," but is essentially a process of evolution. The whole process, therefore demands primary consideration by all those who would labor in the field of education.

It may be argued also that, in addition to a general knowledge of evolution, the teacher should cultivate as a pastime, if not for its immediate practical utility, some branch of natural science. No other pursuit will so thoroly familiarize him with natural processes. By no other study can he so effectively cultivate the scientific habit of mind, which is indispensable to successful teaching. It will reveal to him the intimate relation between his art and all other arts; that they all proceed on

[13] Quoted by S. de Brath in *The foundations of success*, p. 20.

the same assumption, namely, universality of law and the constancy of the order of nature.

Finally, in considering the individual as "the 'last inheritor and the last result' of all the conditions that have affected a line of ancestry which goes back many million years to the time when life first appeared on earth," and his education, as the result of the totality of influences exerted upon him, we have been viewing education as a process rather than a means. The education of the schools, however, is both process and means, a process of individual development and a means of social development. From the standpoint of social evolution its function as a social means demands primary consideration.

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VI

THE SURVIVAL OF THE FITTEST IN MOTOR TRAINING

The thesis which I wish to defend is this—that motor training, or the process of acquiring the skill to do with exactness definite acts, is not so much dependent upon the functioning of new motor centers in the brain, as the keeping functioned of centers which nature has already made active, and the suppression of centers for activities which are useless and disastrous.

The term "survival of the fittest," as used in biological parlance, has a well-defined meaning. As there used in explanation of certain phenomena of heredity, it presupposes three things, viz.: (1) That more animal forms are brought into existence than can in the nature of things live to grow up. (2) That no two are alike, and (3) That the ones best adapted to the surrounding conditions will be the ones to survive. These are exactly the three presuppositions which I wish to make use of and apply in support of my thesis. Modified to fit the question, they would be: (1) More motor activities are natural to each individual than it can possibly use. (2) No two are exactly alike, *i. e.*, in kind, these activities are as varied as their number is great. (3) Those activities most suitable to meeting the needs of the individual are continued, those less suitable are discontinued and forgotten.

Physiologically considered, any theory of motor training leads to a discussion of brain centers. It is well recognized that a training of the hands to do some piece of work with dexterity means more than a change in muscle and joint, if, indeed, changes in these have much to do with it. We must, of course, have flexibility and strength in these parts and perfect submission to some directive force, but that directive force is nervous, and its origin not in those parts at all. With horses perfectly trained to the bit there is no danger of losing a wheel even in the most thickly crowded street, if only the driver

knows his business, and will use the reins accordingly. It is the same with the hands and the feet and the rest of the body, if only the brain will give the proper directive impulse at the proper time. The generally accepted theory with regard to the brain's increasing ability to do this has been that of the *tabula rasa*, if I may borrow from John Locke: that there are in the brain certain cortical centers which are ready and willing to do something, if we will only give that something to do. That we make some motion—entirely new—and a certain cortical cell or complex of cells is thereby changed; that we make that same motion again and again, and the cells become more and more changed together with the connections between them until finally, after an indefinite number of such motions, a new motor center has become functioned. We must admit that this is precisely the accepted theory with regard to the functioning of the sensory centers, and there seems to be no better one to take its place at present, but precisely the one which I am questioning with regard to the motor centers. I will grant that there is no good reason, from the standpoint of neurology, why it should not be true for the latter, but is it? Let us see.

1. When an infant is born it is able to perform certain acts with precision, and some of these involve very elaborate coordination. In fact, many months before birth such coordinations are possible. This fact is at least proof that not all acts have to be learned by the individual, but that the motor centers for some (the whole category of reflex acts) are, without practice, fully functional.

2. As the infant grows older it from time to time adds new movements to its list, and those of us who have little folks of our own to watch can testify to the delight we have felt in noting the progress. How did they do it? Pardon an illustration from the experience of a youngster in my own family. When my small boy had arrived at the age of three months he had, I think, gone thru about every wiggle and bodily contortion possible to so small a specimen of humanity, but, aside from the reflexes set up by general bodily sensations, and those from the feeling and sight of the mother's breast, had, so far

as I was able to discover, made no other movements—in other words, no voluntary movements as such. One day, however, when lying in his crib, with full stomach and at ease with all the world, a sudden spasmodic movement of the arm brought the little fat thumb fairly inside the half-open mouth. There had been, in the five minutes just preceding this act, dozens of other movements equally as spasmodic, and evidently just as little directed as this, the only difference being that this one produced a pleasurable sensation—that of "thumb-in-the-mouth." But even this could not last long. Another spasm of activity, and it was gone again, but leaving a taste for more. For the first time the little fellow seemed to be conscious of his own possibilities for giving himself pleasure, and he evidently tried to repeat the act, but without success. The hand flew here and there and everywhere within reach, except the desired spot, and he fell asleep. The next day, perhaps entirely without memory of his previous achievement, the same spasmodic movements began, soon with the same delicious result, and before he was thru with this day's attempt the movements were largely in the direction of the face, and he had scored three successes. The rest of the story is short. In less than two weeks he had "learned to put his thumb in his mouth," and it was there most of the time for months. What was this learning process but the survival of the fittest of hand movements possible to him; he at that period of development being but a sensualistic hedonist, with the fitness of movement determined in accordance with that philosophy. He learned no new motion, for the first time the thumb went home, it did so as perfectly as he could send it to-day, the whole trouble at that time being that there were so many other possible motions—motions which were just as perfectly performed, but useless from his point of view—to get rid of that the others could only come once in a great while. He is rid of many of them now, because his standard of happiness has changed somewhat. With the beginning of the learning process he had more movements than he knew what to do with, or were useful to him; more, in fact, than could "live to grow up." But one was

useful from his point of view; that is, fitted his environment, and it alone survived. The unfit were eliminated thru inhibition.

Yet this " thumb-in-mouth " acquisition is but a type of the many others of a similar nature which were acquired during the next few months in, it seems to me, the same way. From time to time new motor centers become functional in the very nature of growth; more than can be used, tho each, perhaps, representing some useful co-ordination in far-distant ancestors, and each in turn suppressed, with the exception of the few which can be useful under present conditions. It seems to be quite probable that no activity which is essential to the perpetuation and preservation of the race comes in any other way. Let us see if this claim is unreasonable for the motor activities of walking and talking. In the case of the former we should have to suppose that at an age somewhere between eight and sixteen months, and usually not far from a year, brain centers ripened—to use a figure of speech—which set up a series of motions of the legs, varied and almost innumerable, really nothing more than instinctive movements differing not at all fundamentally from the spasmodic prenatal squirmings, except that some of them enabled the child to do things which he wanted to do, that " want to do " being determined by the laws of growth, and being in the present case what we call walking. Not that the child has any conception of walking and so consciously determines his acts accordingly, but that each motion leading up to the act gives him pleasure in itself because of enlarging his field of activity. Probably no single act in the series is due to conscious imitation, nor even to that unconscious imitation which we call suggestion, but each act is in itself an impulse, pure and simple, made without any reference to aim or end. Yet of the hundreds of impulsive movements, each different from the other both qualitatively and quantitatively, some give no pleasure because they make his world no larger; these are suppressed; are the unfit, which nature eliminates. Others give pleasure by putting things within his reach which otherwise were beyond the limits of the little tangible world which he is building; are the " fittest," which survive. The

only presupposition to this hypothesis of motor functioning is that of many movements natural to the child, and no one who has studied one carefully thru the period just preceding that of learning to walk, would, I think, wish to question the validity of such a presupposition. We certainly underestimate the possibilities of the little fellow if he has not kicked and squirmed in as many and varied contortions as are possible to his anatomy, and misjudge him if all the movements of walking are not among the myriads of other motions with which they are smothered. Creeping would be explained in the same way and, coming at the time it does, gives a most admirable corroboration of the culture-epoch theory.

But how about talking? Our hypothesis would presuppose that among the babblings, and the gurglings, and the mumblings of the months and weeks just preceding the talking period were all the elements of articulate speech, mixed up with hundreds of sounds from which might just as well have been selected the elements of Chinese, Choctaw, and, for aught I know, Chimpanzee. Do you question the truth of that, fathers and mothers?

Tracy says: "If on the one hand we observe the initial babblings of the infant, and notice its marvelous flexibility, and the enormous variety of its intonations and inflections—and this at an age so early as to preclude observation and imitation—it will be apparent that the child has come into the world already possessing a considerable portion of the equipment by which he shall in after years give expression to his feelings and thoughts." [1]

It, moreover, presupposes that, as certain of these sounds were proved by the child to be productive of no benefit to himself, they were discarded, while others which were found to bring mamma, or papa, or milk, or made more vivid in consciousness pleasurable mental states, like dog, and kitty, and hat (brilliant color), were retained. In other words, the survival of the fittest to give pleasure. Such an hypothesis would not in any sense dethrone imitation, to which probably has been rightly attributed such an important place in the acquiring of a vocabulary, but make it the process of

[1] *Psychology of childhood*, p. 116.

clinging fast to the good that we have, and discriminating carefully between it and the bad, rather than setting up the good *de novo,* after some external pattern. It finds plausible support, too, from many normal and abnormal experiences of the child.

It makes easy of explanation the facility with which a child of one parental language and race learns the speech of another totally different when, during the speech-learning years, it hears only the alien tongue. Under these conditions the selection of sounds best fitted to produce desired results is entirely different from that of his ancestors, and the scheme of survival quite modified because of the change in environment. In some cases motor centers for certain sounds are so fully disorganized in the course of years of disuse as to make it virtually impossible by any amount of practice to refunction them, as, for instance, those for the guttural of the German, and the nasal tone of the French among us Americans, and our " j " sound for the Scandinavians.

The inherent possibilities of the child born deaf seem quite natural in terms of our hypothesis. It is a recognized fact, I believe, on the part of those who have experience with this class of unfortunates that for a period of time well into the first year of life, the sounds produced are very similar to, if not identical with, those of the hearing child; that it is only at the time when, ordinarily, the normal child begins to use words that any noticeable difference in the character of sounds produced is discoverable.

In accordance with our theory it would mean that there were, on the part of the deaf child, no criteria upon which to base a judgment of fitness. Even tho by chance a given sound should on one occasion bring a desired result, the ear could not help in the elimination of other sounds, and thru the medium of the muscle sense alone—the feeling of articulation—there was no sufficiently exact directive agency to the production of the same sound again. As a consequence, nearly all sounds were equally non-productive of the desired ends: no motor centers were selected by the environmental conditions for survival. And even if the habitual making of

any sounds at all persisted, the sounds were useless ones. In the process of teaching articulate speech to the deaf, the eye is largely used as a directive agent, and success in eliminating the unfit is only partial.

So far we have discussed only those motor activities which, under conditions of strenuous struggle for existence, would be essential to the survival of the individual. In the case of "animals under domestication," as we in a sense are, the individual, even could he neither walk nor talk, would be supported by his tender-hearted friends, yet the fact remains that, biologically considered, both the activities would come within the category of these essential to life. There is, however, another large class of activities which cannot be considered as essential to life, except in a most restricted sense. Such are the motor activities of trades and games, which have come into the experience of the race at a comparatively late day. Sewing, knitting, sawing, shoveling, and wood-carving serve as illustrations of the trades, tho others would do as well, while golf, croquet, tennis, billiards, and bowling serve as well as any others for the games. There is, too, another class of activities intermediate between those essential to existence and those made seemingly "out of whole cloth," as we might designate those last mentioned, which is well illustrated by the process of breaking a broncho or teaching a new gait to a riding horse. Anyone who has ever been astride a wild horse of the plains, before the "breaking" process is far advanced, is most forcibly impressed with the variety of movements which the beast is capable of making. Most of these movements are as unfit for ordinary riding purposes as are the gyrations of a boomerang. Still, in all this surfeit of motion, there are fully developed, and occasionally brought into use by the animal, each of the coordinations which will ever be possible to him, even when the process of breaking has been completed, besides several millions more, it seems to the rider, which must be gotten rid of as quickly as possible. The process of elimination of these is not here determined by the positive pleasure of making some of them, compared with others, but by the negative pleasure of being spared the pain of whip or spur. In other words, the

elimination of the unfit movements is here brought about by the artificial inhibitive stimulus of pain, rather than a selection of the fittest because of positive pleasure in the act. Nor is this principle applicable solely to the horse in learning his gait. The child feels the force of it on the floor, when learning to walk: a little later on the ice, when learning to skate; and to those of us who ride a wheel, the eliminative power of pain is not yet forgotten.

In the case of the intricate motor activities of some of the more delicate handicrafts it would seem, at first thought, as if an hypothesis must fail of explaining the conditions. Can we, you say, suppose that the deftness of finger of the weaver, the exact manipulations of the wood-carver, and, to go outside the trades as such, the wonderful exactness of the prestidigitator are but the result of a selection of movements born ready made? The residue of a sifting process, so to speak? To me it seems quite possible. In none of these cases does it seem necessary to suppose that new elements of motions have been set up *de novo*. The only thing which perhaps is new is the combination, the co-ordination, and possibly, not that.

Given a thousand tiles of various colors, and the number of designs possible from their combination is almost innumerable. Given a much larger number of cortical cells, each in some way productive of a definite nervous stimulus capable of energizing a given muscle in a given way, and the combinations are practically infinite. Nature herself, thru the medium of what we call instinctive acts, rings in the combinations, and not the individual thru any conscious initiative force—this is the thesis which I am defending. Fitness to the occasion determines which ones of the various combinations shall be discarded and which continued. The dynamogenic influence of an idea of a definite motion, even tho that motion has never yet been performed, sets up impulses of the general character required, if motor centers for them are present in the brain; those perfect to the end and those imperfect to the end at first in almost inextricable confusion. Learning the act is the process of getting rid of the bad ones. The only qualification of this would be one of quantity of movement possible, not quality. We can

hardly suppose that the contortionist who can tie a knot in himself had all the muscle and joint flexibility necessary for the act from the first. Long years of exercise were necessary to gain his accomplishment. But this exercise was to produce change in muscle and cartilage, not in brain. He could bend over backwards a little when he began training. He simply did it much more when thru. That the co-ordinations perfect to the end desired are present from the beginning of practice even of the most difficult acts, let me prove by reference to some of the accidents or "flukes" which occasionally occur in learning games of precision. On several occasions I have seen novices at the game of golf take the driver in hand for the first time and send a ball from the tee in a manner which would have been creditable to a Travis or a Findlay Douglass. No one of them did as well again in months of practice, altho the averages of each fifty drives were gradually becoming better. That is, the unfit combinations were being eliminated, tho the perfect stroke at first shows that as correct co-ordinations were possible from at the start as after almost any amount of practice. The learning to drive functioned no new brain centers. Accidents of this kind might be related almost without number—phenomenal puts at golf, strokes at billiards, strikes in bowling, shots at archery, all by beginners and all demonstrating that the nervous and muscular apparatus of man is fully tuned at the start, and that the practice which makes perfect is a process of subtraction rather than of addition. These latter illustrations were based upon the supposition that the one learning the movement was an adult with all the probabilities of movement common to the adult. With the child the conditions are somewhat different, in that the co-ordinations have not all been perfected. Thruout the entire developmental period of the child, perhaps until the adult stage has been reached, new motions from time to time make their appearance. The earlier months and years of childhood show the most rapid and marked changes in the panorama of movement. A few days, or at most a few weeks, make radical changes in the impulsive movements. Physically and mentally —and by that I mean from the standpoint both of muscle and

brain—the co-ordinations of the adult are impossible to the child of one year. It would be as impossible for the little tot to do embroidery or adjust the mainspring of a watch as it would be for it to turn on an electric light from a fixture six feet high. In the former cases the motor centers for such fine co-ordinations have not developed; in the latter, the bones and muscles. Both will come in time, if all goes well. Only existent possibilities can be made use of for purposes of selection. A pigeon fancier might wish ever so ardently that he could originate a variety of fantails, but he must wait until some of his birds are hatched with extra tail-feathers before beginning the process. He is helpless until they put in an appearance. It is just as true for the selection of motions as it is of pigeons.

Educationally, it would seem that there are three fundamental principles bearing upon the science and art of motor training which this line of thought emphasizes:

(1) The one just mentioned that it is futile to attempt to teach a child a movement till the elements of the movement make their appearance naturally, in accordance with the laws of growth. In other words, selection is impossible until there is something to select from, and the varieties cannot be artificially originated.

(2) When the new co-ordination first makes its appearance it is easier to suppress its unfavorable variations, and hence—in common parlance—to learn the act with precision. It is said that to play golf well—and I take illustrations from this game because it requires such wonderfully delicate and intricate co-ordinations—one must have begun to play before the age of fifteen years. Illustrations from learning a foreign language are to the point here, as are those from many other activities, such as playing the violin, the piano, and the performances of the professional juggler. The principle comes home to us teachers too, in determining the time various kinds of handiwork should be introduced into the schools. With our present state of knowledge we are between the two horns of a dilemma: that of attempting the impossible—with all its disastrous results—of demanding co-ordinations which have not yet been born to the child, and that

of missing the opportune time. Dr. Thorndike says: "The best practical attitude for the teacher of children from six to twelve to take would seem to be to find out, by trying, the most economical times to teach the movements she wishes the children to know, and to make sure, again by trying, that they do not hurt the children's health. Whether they will or not cannot be told beforehand by any theory about the development of the brain by virtue of its inner growth, but only by observing directly the signs of brain-exhaustion."

(3) Co-ordinations which have previously been set up in accordance with the laws of growth, but have not at the opportune time been selected for survival, may at a later period be made prominent, but not with the same ease, nor with the same success as then. This point has its bearing upon the problem of the economy of time. No doubt a man of fifty could learn to play marbles, but his grandson of ten would beat him regularly for the first few months. The brain centers for such co-ordinations are undoubtedly present, but long disuse has made them very untractable, and it would be a long time before the combinations unfit for "knuckling down" could be eliminated. I need not make the application of this point to the problem of manual training in the schools. It is undoubtedly true, too, that the possibility of developing during adult years, is due very largely to the fact that we had so many plays, as children. Karl Groos says: "Yet the early appearance of this instinct [play] is of inestimable importance. Without it the adult animal would be but poorly equipped for the tasks of life. . . The thought presents itself here that it must be the iron hand of natural selection that brings into bold relief, without too compelling insistence and apparently without too serious motive—namely, by means of play—what will later be so necessary."

In terms of our hypothesis of the survival of the fittest, this would mean such a development, thru play, of those motor centers which later must be utilized, as to make it certain that they persist until the environmental conditions are such as to make use of them for selection.

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VII

DISCUSSION

EYESIGHT AMONG THE HIGHER ALPS

One day last February I made an interesting study of the eyesight of children in the village school at Grindelwald. The school year is practically ten months long; the days per week, six; the attendance, compulsory. The morning session begins at seven o'clock and continues until twelve o'clock; the afternoon session is from two o'clock until half-past five. Children of the first grade begin one hour later in the morning and are dismissed one hour earlier in the evening. As the days shorten with the approach of winter, the hours for the older pupils are necessarily modified during such season; but the children must be in their places as soon as it is light enough to work and are dismissed when it is too dark. As many live an hour's walk or more from the schoolhouse, it is necessary that the coming and returning must, during the shorter days of the year, be in the twilight, for the sun rises late and sets early in these mountain valleys. The school must have the child's entire working day.

The school building is far from ideal. The ceilings are low, and there is no white coating to the walls for diffusion of light in the darker corners. In every room the pupils face the light. This is probably necessary in order to get sufficient illumination at the earlier and later hours of the day. The temperature of the rooms is fully ten degrees less than in American schools, and the ventilation very bad. The children wear no overshoes, and sit thruout the day with feet wet from their long walks thru the snow. In addition to the heavy work during the excessively long hours at the school, each child carries on his shoulders to his home a heavy satchel of books for work during the evening. School life in Switzerland is serious business.

The surprising thing to me, in my examination of this

school, was to find among the two hundred children enrolled only one child wearing glasses, or, as the teacher informed me, requiring special placing or consideration because of eye-condition. Here, then, was a school of two hundred pupils, with unhygienic schoolhouse, eight to nine hours of rigorous work in school, supplemented by evening preparation of lessons, but with practically no myopia or other defective vision. Every eye seemed strong and normal; and every child healthy and vigorous. This school, its conditions and results, is fairly typical of the schools in the higher Alps.

What is the explanation of this remarkable paradox? Largely this: The children of Switzerland are fed plain, but healthful food, sweetmeats and pastries being practically unknown. The schoolrooms are not heated above 60° F. The long walks and climbs over the mountains, in getting to and from school, are conducive to a magnificent physical health denied the denizens of our American cities and towns. And then the tobogganing, ski-ing, and other winter sports—what glorious fun and exercise in the vigorous mountain air and germ-killing sunshine! An American pedagog can afford to cross the Atlantic merely to see the fun and frolic of a Swiss school recess. Every child has his toboggan. Bareheaded and without wraps, they come tearing down the mountain side in a way delightfully destructive to bad eyesight and the poor health which frequently is its mother. At Grindelwald the dash over the Devil's Leap is particularly destructive to germs. Several times recently I have been on the mountain side at dismissal of school, and have met the boys and girls going home, each guiding his sled in some marvelous manner, as it passed me at lightning speed in a run of over two miles to the valley below. What bright eyes and rosy cheeks! What strong lungs and vigorous "Achtung!" What magnificent physical health!

What matters it that these children of the mountains must leave home in the mornings before the dawn of day, in order to be at the schoolhouse as soon as it is light? What difference is it that they must spend many more than the usual hours per day in school work and six per days per week; that they must live in unsanitary schoolhouses and be faced toward the bril-

liant light of Alpine altitude? The long walks and mountain climbs in getting to school, the glorious fun of romp and frolic, and the plain wholesome food on which they fare, are adequate compensation.

No one recognizes more than do I the vital importance of good buildings, proper illumination, and the careful placing of pupils in our American schools; but there are other things more fundamentally important. Are not our school buildings too near the children's homes? Is not walking, with its great possibilities, becoming a lost art in America? Do we not keep our schools and homes too warm? Is there not a serious loss in the disappearance of the olden-time recess of vigorous romp and play? Is there sufficient reliance on and provision for abounding, exuberant physical health as the fundamental safeguard from all the ills which we categorize as myopia, hypermetropia, chorea, spiral curvature, lung and heart weaknesses, dyspepsia? Does not the greatest problem in physical culture lie in some way and somehow finding a way to vitalize our formal calisthenics with the romp and fun, the sparkling eye and ruddy cheek, the enkindled mind and joyous shout, which characterize exercises such as I have described?

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VIII

REVIEWS

Library bulletins of Columbia University: Books on education in the libraries of Columbia University. New York: Printed for the University, 1901. 435 p. $1.00.

The Library of Columbia University has just published, as Bulletin No. 2, this extensive and important piece of educational bibliography. It is a list of over thirteen thousand titles relating to education, found in the University library and the Bryson library of Teachers College, and includes all material on education found in the two libraries, except Columbiana and the Bryson library collection of text-books.

The list has been compiled by printing the card catalogs of the two libraries, and therefore includes not books alone and a host of catalogs and reports of colleges and schools, but (and this feature is of the utmost usefulness) all pamphlets, periodical articles, monographs, chapters or parts of books, which have been thought worthy of separate cataloging. No other extended bibliography of education has ever done any of this analytical work, so that much good material has now for the first time been included in a subject classification of educational literature. While printing so large a list as the present, this sort of indexing might have been extended with profit to include, *e. g.*, all important articles in the file of the EDUCATIONAL REVIEW, and all articles in such volumes as Walker's *Discussions in education*, Eliot's *Educational reform*, and Gilman's *University problems*, instead of selecting a few articles from such sources.

The titles are classified by subjects under forty-one main headings, which correspond almost exactly to the main headings and subdivisions used in Monroe's *Bibliography of education;* the only important change being a separate grouping of the general literature of elementary, secondary, and higher education with extended geographical lists under each of these heads. This geographical feature is everywhere espe-

cially full, one-fourth of the entire book being devoted to the educational literature of States, cities, towns, and separate institutions.

It was impossible, of course, without immensely extending the scope and cost of a work already filling over four hundred large quarto pages, to attempt anything in the way of descriptive or critical notes.

Viewed in the large sense, the printing of this catalog is a thoroly worthy and commendable enterprise and cannot fail to justify the hope, modestly expressed in the preface, that even in its present tentative form it may prove a useful aid to students of education everywhere.

The list, as it now stands, without doubt furnishes the best existing basis for the preparation of a complete annotated bibliography of education, which should index all periodical literature, include all separate chapters, monographs, and parts of books—in short, include everything ever printed on education.

This is a work for our national Bureau of Education, and ought to be done by a corps of specialists, kept constantly up to date on cards, and printed entire, or in sections, from time to time. Any writer or student of educational topics should be able to send to the division of bibliography of the Bureau of Education and be sure of getting all important references.

Considered in a stricter sense, with more attention to details of compilation, it seems certain that, if the present list is ever recast, a more minute subject classification should be used. For example, Section 13 seems to be an *olla podrida* into which has been thrown, without subdivision, the literature of school libraries, examinations, free text-books, school laws, school savings-banks, and the many problems of the curriculum, while the seeker for material on rural schools, academic freedom, or college entrance requirements, finds nowhere all pertinent references collected alone.

A very well made author- and title-index, which also includes many minor subject headings, fills thirty pages.

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Socrates und sein Volk. Ein Beitrag zur Geschichte der Lehrfreiheit—Von Dr. Robert Pöhlmann, ord. Professor der alten Geschichte an der Universität Erlangen. München und Leipzig: R. Oldenbourg, 1899. 133 p. 3 Marks.

Hegel regards the execution of Socrates as necessary and just. Socrates was found guilty by the people of Athens of attacking the very foundations of their system, but he was not put to death for that. Had he acknowledged his guilt and suggested a form of punishment, he would not have had to drink the hemlock. It was because he refused to recognize the sovereignty of the people that sentence was finally pronounced upon him. It was a conflict between the collective spirit (*Allgemeingeist*) of Athens and an individual, and the individual had to go to the wall. With this judgment one of the most recent historians of Greek philosophy, Dr. Gomperz, practically agrees in his *Griechische Denker*. The community, he declares, always has the right to assert itself and to counteract destructive tendencies, and Socrates fell in such a conflict.

This view, which is quite common, as may be seen in Grote's *History of Greece,* and in Köchly's *Socrates und sein Volk,* is combated by Dr. Pöhlmann in an exceedingly able and, in my opinion, successful manner. His little book is not only a magnificent justification of Socrates before his modern judges, but also a noble and timely defense of free thought and free speech. Civilization (*Kultur*) means differentiation and individualization. The more profoundly an individual participates in culture, the more independent he must become in his thoughts and feelings, the less he will agree with collective thought and feeling. Now the same civilization which intensifies individuality also intensifies collective life, and this tends to hinder the development of individuality. The individual is in danger of being absorbed by the mass. The mass is ignorant and brutal, greedy to assert its own interests, and to trample upon the rights of those who differ from it. It is therefore to be regretted, says Dr. Pöhlmann, that those who ought to defend the freedom of the personality against the tyranny of "the many" should help to obscure the proper relation of the individual to the whole. This Dr. Gomperz has done by justifying the conduct of the Athenians towards Socrates. He has drawn a false picture of a great personality

and a great age. A study of the history of Greek civilization will show that Socrates was not a radical innovator, that he did not create the spirit of dissolution, but that the spirit of individualism and criticism was the natural outcome of democracy, and that it was at least as old as the sixth century B. C. At the end of the sixth century we already find the beginnings of the *Aufklärung*, the tendency to reflect upon, criticise, and oppose tradition. From this time on the spirit of criticism grows apace, owing in part to the changes in economic life, the progress of commercialism. The rise of philosophy was possible only in a society already highly differentiated, and was not merely the work of a few great personalities. It is absurd to regard the highest product of a civilized nation, its mental labor, as hostile to its innermost essence, as anti-national. Dr. Gomperz says it was the fate of philosophy to undermine national ideals and habits of life. If this were true, the blame would rest equally with the democracy of the end of the sixth century, for did not the democracy really enthrone the principle of subjective reflection? The same judgment had formerly been passed upon the democratic innovators as was afterward pronounced upon the philosophers. Dr. Gomperz calls attention to this himself in treating the fifth century, but when he reaches Socrates he seems to forget what he said before and speaks of the democracy as a conservative force. Dr. Pöhlmann shows how the leaven had been working before Socrates's time, and appeals to Greek literature in support of his view. It is not fair, he concludes, to attribute to Socrates and to philosophical thought what is simply a typical characteristic of a developed civilization.

The critics of Socrates are also wrong in accusing him of destroying the love of country among his people. It must be remembered in the first place that long before his time the Athenians were frequently chided for their cosmopolitanism. "The cosmopolitanism of economic rationalism is older than the cosmopolitanism of the 'sage' as formulated by the school of Antisthenes." Even among the masses we find traces of a purely individualistic conception of the relation of the individual to the community. We are reminded of the proletarians "who cared little for the commonwealth so long as they

had their bread." We have here simply another characteristic of a highly developed civilization, that is all. Moreover, there is no necessary antagonism between philosophical criticism and national ideals. Where can we find higher praise of Athens than in the works of Euripides, Thucydides, and Plato, in spite of their individualism? Yes, and who ever showed a deeper and more touching love of fatherland than Socrates himself? But, says Dr. Gomperz, Socrates coldly turned his back upon the Athenians, one of the most noble and plastic of peoples. Here again the trouble with Dr. Gomperz is that he identifies the people with the narrow ignorant mass. The multitude, as such, is neither good nor bad; its conduct is simply incalculable. What it lauds to the skies to-day, it pulls thru the mire to-morrow. The psychology of the mass shows that it is futile for the individual to seek to influence its character. Socrates had ample opportunity during his life to discover this truth, and we cannot blame him for not going into Athenian politics. Plato seems to have anticipated the objections of the modern critics when he says in the *Republic:* "Say to him that, in deeming the best votaries of philosophy to be useless to the rest of the world, he is right; but also tell him to attribute their uselessness to the fault of those who will not use them, and not to themselves." The political passivity of Socrates is a typical phenomenon, the necessary result of an exaggerated form of democracy. The inevitable concomitant of majority rule is the growing predominance of professional politicians and the corresponding impotence of unselfish and prudent patriots. It must not be forgotten either that Socrates did not wholly despair of his fellow-citizens. Moreover, he served them in his own way as an active teacher and was conscious of fulfilling his mission in doing this; he expressly declares his purpose to be the training of true statesmen.

It cannot be denied, however, that Socrates regarded the radical form of democracy as it existed in Athens as absurd. Government seemed to him a science, and a difficult one at that; one for which only the few were capacitated. The crowds which filled the agora and the courts he looked upon as an ignorant mob that had really never thought about the state, and to place legislation in the hands of such an organ was, for him,

to do violence to human intelligence. Of course, this intellectual reaction against the tyranny of the many aroused lively opposition, and ridicule and suspicion were cast upon the educated. This may be gleaned from the literature of the time, particularly from the comedies of Aristophanes, who appeals for his effects to the hatred which the people entertained toward the educated. "The liberalism of the democracy was not strong enough to endure the noble eccentricity of a Socrates." His teaching was held to be in conflict with the collective beliefs; he was accused of atheism, of corrupting the youth, that is, of making them think themselves wiser and better than their fathers, and of despising the political institutions of the people.

But did the masses actually condemn Socrates? Was it not rather the *polis,* the whole people, the state? Pöhlmann thinks not. The ruling party always acts as tho it were the whole people. The 220 jurors who found no fault in Socrates had as much right to claim that they represented the people as did the 280 who pronounced him guilty. Why should we merely *count* heads and not *weigh* them? "The tragedy which is enacted here repeats itself thru the entire history of mankind down to the present day in ever-changing forms, but with the same inevitable result: the stunting or destruction of the high and noble by the brutal forces of life; the suppression of the mentally and morally free individuality, of free self-determined thought, by the gregarious spirit; in short, the oppression of the purely spiritual element of developed civilization by the brutal weight of the 'common' which the mass-soul casts into the scales."

The historian will reach the following conclusion with respect to this whole matter. We have in this case a conflict of interests, the interest of the ruling political party in the maintenance of its power and glory, and the interest of the *Kulturmensch* in the freest possible exercise of his personality. The court which sentenced Socrates was a political body, and we have here not a purely judicial procedure, a struggle for justice, but a political action. Socrates was not a friend of the democratic constitution, but that does not make him an enemy to the state. Scientific thinking, which seeks the truth and

nothing but the truth, is not hostile to the true welfare of the state, but promotes it. False thinking is dangerous, and what better way of correcting it than by free discussion? The true interests of the people demand free play for every serious mental pursuit whose final goal is truth.

And that is really what the Greek people themselves thought of the matter. The law making unbelief actionable was only a few decades old when Socrates was condemned, and was rarely enforced even then. Moreover, such a law does not seem to have existed generally in the Greek cities. Never before the present did the world enjoy such freedom of thought and speech as among the Greeks. Of course there were occasional tilts between science and politics and religion, but no permanent pressure was exerted upon free thought. Indeed, no bolder utterances can be made by modern thinkers in metaphysics, ethics, politics, and social theory than were proclaimed by the Greek philosophers and poets.

Dr. Pöhlmann's book is an admirable piece of work: It shows a wide knowledge of the life and history of the Greek people, and gives us an insight into the spirit of the times leading up to the period under consideration. It enables us to see that remarkable man, Socrates, in his historical setting, and gives us a better understanding of him and what he stood for than we usually get from histories of philosophy. But the book does more than that. It also helps us to form the proper conception of the rights of the individual in the social whole. The growing tendency to make the individual a part of a machine, which is so marked in the economic world, cannot be encouraged in the mental world, and the principle of free research must be guarded as a sacred heritage. Should our universities ever prove unfaithful to this ideal, science will seek her dwelling place outside of the universities, as she has often done before, for freedom is the blood of her life.

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NOTES ON NEW BOOKS

These notes on books received do not preclude extended critical reviews hereafter of such of the books as in the judgment of the editor are of special importance to students of education. Any books mentioned in this list will be sent by the EDUCATIONAL REVIEW to any address on receipt of the published price.

Introduction to psychology, An—By Mary Whiton Calkins, Wellesley College. New York: The Macmillan Co., 1901. xv+509 p. $4.00.

So many new text-books of psychology have recently appeared that it is difficult to see how place could be made for another, and yet an examination of Miss Calkins's book amply justifies its existence. It is not going too far to say that the work of the author has been thoroly well done, and that her classification of material and her correlation of topics are in some respects better than those to be found in any other text-book of the subject. She has been especially fortunate in including a discussion of comparative and abnormal psychology. The book is one that will attract deserved attention among students and teachers of the subject everywhere.

Poetry, The beginnings of—By Francis B. Gummere, Haverford College. New York: The Macmillan Co., 1901. x+483 p. $3.00.

Mr. Gummere's scholarly book is in effect a philosophical and anthropological discussion of certain types of literature. It deserves and will receive detailed criticism later.

Roman political institutions, A history and description of—By Frank Frost Abbott, University of Chicago. Boston: Ginn & Co., 1901. viii+438 p. $1.60.

Professor Abbott's book is obviously intended to be used by students of Roman history and of Latin literature who wish to go somewhat more fully than is usual into the structure of the Roman commonwealth. For this purpose the book is wholly admirable, and we hope that it may fall in the hands of students of Latin generally.

Student's history of philosophy, A—By Arthur Kenyon Rogers, Ph. D. New York: The Macmillan Co., 1901. xi+519 p. $2.00.

The many attempts to make a satisfactory and yet simple history of philosophy for introductory students have not yet succeeded in solving all the difficulties inherent in the undertaking. Mr. Rogers's volume is well conceived and well written, but it would be going too far to say that it is entirely satisfactory. For example, we feel that he is mistaken in the assumption that the study of the history of philosophy will center about the systems of individual men. That it has so centered in the past is undeniable, and this has been one of its weaknesses as an academic discipline. It has too often appeared to be merely the story of the loosely related and even flatly contradictory reflections of individual thinkers. When the emphasis in the study of the history of philosophy is transferred from individuals to tendencies and problems, the treatment of the subject will be greatly improved. Mr. Rogers's volume is helpful and interesting.

Who's who in America: a biographical dictionary of notable living men and women of the United States, 1901–1902—Edited by John W. Leonard. Chicago: A. N. Marquis & Co., 1901. 1350 p. $3.00.

This invaluable book of reference is well known in libraries and newspaper offices. As a guide to the leaders of public opinion of to-day and the best representatives of the public and professional life of America, the book is an absolute necessity. It contains 11,551 names, and, so far as we have been able to test it, these are entered and described with extraordinary accuracy. Not the least interesting item in the book is the editor's discussion of the educational statistics of the 11,551 persons whose brief biographies appear. Of this number, 9760 furnished educational data more or less complete. An analysis of the information furnished discloses the somewhat remarkable fact that no fewer than 4521 are graduates of universities and colleges conferring the baccalaureate degrees in letters, science, or philosophy. Others, to the number of 965, attended such institutions, but did not graduate; 1138 completed their education in secondary schools, public or private; 117 graduated from normal schools; 366 from foreign institutions; while 282 were privately educated. These statistics are full of significance.

IX

EDITORIAL

Changes in the Secondary Schools of Germany

The Berlin correspondent of the London *Journal of education* has furnished that excellent periodical with a capital summary of the changes in secondary-school work and organization that have followed upon the school conference that assembled at Berlin in May of 1900. The summary is so good that we are glad of the opportunity to reproduce it.

The results of the conference appeared rapidly. The edict of the Kaiser that followed proclaimed the equality, from the point of view of general culture, of the three types of higher schools with nine successive classes; the May-June number of the *Centralblatt für die gesammte Unterrichts-verwaltung* brought the new time-tables, and the next edition contained the revised edition of the Lehrpläne. The changes thus introduced are not very numerous, but they are significant. The foremost is the increase in the number of hours assigned to Latin at the Gymnasium and Realgymnasium. Six extra lessons are devoted to this branch, and these are secured by the simple device of adding six extra hours to the sum total. In spite of the oft-repeated insistence on the supreme importance of Greek life and thought and its influence on modern culture, and notwithstanding the able championship of his favorite study by Willamowitz-Mollendorf, this branch makes no increased demands on the attention of the pupils of the Gymnasium—nay, even in this the home of classical training, it is degraded to the rank of an "optional subject"—and "where circumstances render such a course advisable" may be replaced by modern languages. Beyond the favorable allusion in the Kaiser's edict, no reference is made to the Reformschule, and in the new programs the commencement of Latin in the lowest class is still treated as the normal course of study. As a rule, the time allotted to modern languages has undergone no diminution,

but it is opposed to the doctrine of "intensification" that the number of hours shall drop to two hours per week in the second and third years of study and be increased in the later stages, as is now the case in the Gymnasium. History has gained one hour's additional consideration, and geography three, appearing once again as an independent branch in the upper classes. Such a reform was extremely necessary, if any importance was attached to the retention by the pupils of the upper division of the geographical knowledge they had previously acquired, and it is perhaps felt that it is unworthy of a colonizing nation to be ignorant of geography. Mathematics and science claim the same time as before.

The new programs of study contain fewer changes than might have been expected. While the alterations in the detailed courses are not very numerous, the notes on method have been largely rewritten and contain much that is new. Herein lies the importance of the revised edition, because these notes reveal the spirit in which the changes were made, and thru them are scattered words of educational wisdom. Religious instruction did not enter the discussions of the conference, and here no change has been made. In the mother tongue changes have been made here and there in the reading material; in consonance with the desire alluded to above, geographical subjects secure a larger place in the reading books of the lowest class, and in the higher forms the works of some more recent authors of established repute are set down to be read. It is urged that the introductory course in philosophy, which was abolished by the programs of 1892, should be re-established if there be a suitable teacher, and in any case it is stated to be advisable that the pupil should form some acquaintance with psychology and logic. In respect of method, still greater stress is laid on the training in oral expression, and upon the teachers is laid the burden of seeing that miniature lectures given from time to time by the pupils are really such and do not degenerate into the declamation of a prepared oration. In the classical languages the chief anxiety is to remove everything that may tend to increase the difficulty of the study—all unnecessary grammatical detail is to be rigidly excluded, and in the case of more

than usually difficult passages, *e. g.*, the choruses in Greek tragedies, preparation in class under the guidance of the teacher is to take the place of independent preparation at home. Moreover, in Latin, the Latin summaries of the contents of books read in class are no longer demanded.

In mathematics, more attention is to be given to the solution of geometrical problems, and there is to be a better correlation of theory and its application. In natural science, greater space is to be given to practical work. Thruout there is a tendency to give greater freedom to the school authorities, and to allow them to adapt their instruction (within limits) to the needs of their pupils. One other matter deserves mention. Rowing is now and again substituted for gymnastics (and is found to be an excellent specific against headache), and swimming is everywhere to be encouraged.

Mr. Carnegie's Latest Gift

Mr. Carnegie's latest gift, of ten millions of dollars, to endow research, the fund to be administered by a board of directors named by the donor, is at once his greatest and his most important gift. Libraries are well enough in their way, and their establishment far and wide is a public service. But libraries make an appeal for support and encouragement which is heard by many. Research, on the other hand, the very life-blood of our civilization, appeals only to those endowed with high imaginative power and equipped with the qualities of educational statesmanship. Few of these are found among men of wealth. To the average successful man of affairs, research is in the clouds, it is impractical, it is a mild type of lunacy and not to be encouraged. Mr. Carnegie knows better. His own fortune is the result of a business which has depended upon scientific research not only for its origination, but for its stupendous development. He is able to appreciate the relations between theory and practice as they really are, and to feel confident of the soundness of his judgment in devoting a portion of the proceeds of his successful practice to the widening and deepening of the theories on which all practice depends. With this great fund, wisely administered, the United States ought to develop in a generation's time an army of investiga-

tors unequaled anywhere in the world. Innumerable questions await solution in physics, in chemistry, in biology, in economics and social science, in education, in psychology, physiology and pathology, and in other fields. The Carnegie fund ought to be so used as to set about their solution at once. The best-trained investigators now living, when not already here, should be either brought here or surrounded with the most perfect conditions for carrying on their work. The possible benefits, both to scholarship and to practical life, are limitless.

Mr. Carnegie has, in our judgment, shown great wisdom in refusing to found a new university, national or other. The best opinion is that such an institution would retard, not promote, the cause for which it would ostensibly be established. But a great fund for research, administered so as to strengthen the true university work that we have here in America, and so as to bring about genuine co-operation between all university workers, is precisely what higher education in the United States stands most in need of.

There are various dangers to be guarded against. In regard to some of these the Smithsonian Institution is a veritable lighthouse. Everything will depend upon the wisdom, broad-mindedness, and scientific imagination of the directors of the fund.

It is sincerely to be hoped that with the establishment of this new foundation, making possible so much more than anyone has yet planned, we have heard the last of the proposal for a governmental university at Washington. It has always been unnecessary, and would now be ridiculous, in addition.

Universities and their Benefactors

By a fortunate coincidence the readers of the EDUCATIONAL REVIEW are able to consider together with Professor Dewey's article on "Academic freedom," printed in this issue, the carefully prepared paper on the "Rights of donors" read by Chief Judge Parker of the New York State Court of Appeals at the Syracuse meeting of the Association of Colleges and Preparatory Schools of the Middle States and Maryland.

Judge Parker's argument marches judicially from its premises to its conclusion, but it seems to us that the premises, as

stated, either exclude universities from consideration entirely or else mistake the office and functions of universities. No institution can be a university, for instance, in which a benefactor has the right to insist that the doctrines—economic, philosophic, biologic, or other—which are believed by him to be true shall be taught. Such institutions may, do, and perhaps should, exist; but they are not universities, and by assuming the name do not become so. A university conserves the truth as truth appears in its own light. It alters its standards of truth in the various domains of knowledge with the discovery of new facts, and it entertains no prejudices which are allowed to weigh against evidence and logic. The benefactor of a university should realize this, and it should in fairness be pointed out to him when his gift is made. He may wish to propagate the Euclidean geometry, but the followers of Lobachewsky may, before a decade has passed, have shown that to be undesirable. If so, a university cannot propagate the Euclidean geometry save for historical and comparative purposes. A thousand years ago the Ptolemaic theory of the motions of heavenly bodies might well have appealed to the analogue of the modern university benefactor. If it had done so, the foundation would soon have become ridiculous. It takes some courage to believe that truth is mighty and will prevail, but universities have that courage and represent it before the world. To part with any portion of it for money would be to compound an intellectual felony.

In our judgment there are very few men at once so vain and so short-sighted as to wish to give endowments for the propagation of their own personal ideas and preferences. Almost without exception the men and women who give to higher education give in the largest and freest spirit possible.

So far as our observation goes, most questions of "academic freedom" that arise in the United States are really questions of manners, not of morals at all. Liberty is not license; and he is no worthy university teacher who is so little schooled in the world's science and the world's philosophy as to run full tilt against all that mankind has said and thought and done. The place for such a person is not in a university, but in a madhouse.

Professor Dewey seems to us to be supported by not a little recent history when he says that " it is possible to confuse loyalty to truth with self-conceit in the assertion of personal opinion. It is possible to identify courage with bumptiousness." There's the rub. A university professor owes something to ordinary standards of sanity and good breeding as well as to truth. Indeed, they are part of the truth, when seen steadily and whole.

The fact of the matter is that in these modern days nine cases out of ten of so-called *Lehrfreiheit* are hopelessly confused with insoluble personal equations. The poor benefactor or donor is dragged into the matter against his will and often without his knowledge, for purely controversial purposes. When a legislature, or a synod, or other ecclesiastical body, interferes with freedom of teaching, then there is a genuine abuse; but we fancy that somewhat prolonged search would be needed to find a real case of infringement on a teacher's liberty by a benefactor, when the teacher was bearing himself in all respects like a scholar and a gentleman.